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LECTURE III.[1]

(Delivered on March 6th.)

MR. PRESIDENT AND GENTLEMEN,—In my first lecture I dealt especially with the factors that are held responsible for the various functional neuroses and psychoses occasioned by the physical forces generated by high explosives; and in my last lecture I dealt with the possibility of noxious gases playing an important part in the production of severe symptoms in cases of shell shock with burial in which there was no visible injury. I also brought forward statistical evidence to show that an inborn or acquired neurotic disposition was a very important factor in promoting the onset of a neurosis or psychosis and in determining the duration and severity of the symptoms.

The varying groups of signs and symptoms indicative of loss of functions or disorder of functions of the central nervous system arising from exposure to forces generated by the detonation of high explosives are classed under the term "shell shock." In a large number of cases, although exhibiting no visible injury "shell shock" is accompanied by "burial."

SYMPTOMS.

From the point of view of compensation or pension the War Office authorities very properly regard "shell shock" as a definite injury, although there may be no visible sign of it. This fact is of considerable importance, for as in the case of pension or compensation for traumatic neurasthenia under the Employer's Liability Act, the notion of never recovering may become a *fixed idea*. The detection of conscious fraud is not easy in many cases of "shell shock" in which recovery might reasonably have been expected, for it is difficult in many cases to differentiate malingering from a functional neurosis due to a fixed idea. The first point is to be sure of your diagnosis that the disease is altogether functional, and being satisfied thereof to avoid all forms of suggestion of the possibility of non-recovery. A very great difficulty in the complete investigation of these cases arises from the fact that few or no notes, as a general rule, accompany the patients; one has therefore to rely upon the statements made by the patient himself, or perchance of a comrade, if he has no recollection of the events that happened. Most of the cases of shell shock, however, are able to give satisfactory information of the events that preceded the shock; they even tell you they can call to mind the sound of the shell coming and see it, in the mind's eye, before it exploded; then there is a blank in the memory of variable duration. In some of the more severe cases, especially where there has been burial or physical concussion by a stone or a sandbag, or by falling heavily on the ground after being blown up in the air, there is a more or less complete retrograde amnesia of variable length of time. In a case of simple shell shock it is impossible to say whether the patient was unconscious during the whole period of time of which he has lost all recollection of the events that happened, or whether during the whole or a part of the time he was conscious, but owing to the "commotio cerebri" the chain of perceptual experiences were not fixed. In the majority of cases "shell shock" affects only the higher cortical centres; in severe cases the vital centres, as in apoplexy, alone continue to function or the patient is only in a dazed condition, and he may automatically perform complex sensori-motor purposive actions of which he has no recollection whatever. Several cases of this kind have come under my notice, but I will describe only one of the most reliable, as it is a history obtained from an officer.

His company had dug themselves in in a wood; he went out into the road to see if a convoy was coming, when a large shell burst near him. It was about 2 o'clock in the morning and quite dark; about 4.30 A.M. it was quite light, and he found himself being helped off a horse by two women who came out of a farmhouse. He had no recollection of anything that happened between the bursting of the shell and this incident. It is interesting to note that it is possible for him to have inhaled noxious gases, for the single cigarette in a metal case that was in his breast pocket was yellow on one side due, no doubt, to picric acid contained in the explosive.

All degrees of effects on consciousness may be met with, from a slight temporary disturbance to complete unconsciousness, with stertorous breathing continuing till death. Occasionally cases have been admitted under my care at the 4th London General Hospital who had not yet recovered normal consciousness, and for some days were in a dazed, somnolent, or even semi-conscious condition. Usually these cases came at a time when large convoys were sent from the front owing to a recent engagement. The histories of cases sometimes showed that following "shell shock" men occasionally absented themselves and wandering away from the trenches were found in a dazed condition, unable to account for their actions or to recollect how they came there. This condition is not unlike a fugue or automatic wandering of an epileptic; and, indeed, in some of these cases there was a history of epilepsy or a predisposition to it, but in others no other cause was ascertainable than the conditions which induced "shell shock."

A young lieutenant was admitted under my care suffering with acute chorea. There was no rheumatic history; he had a bruise over the left forehead; he complained of terrifying dreams. He remembered nothing that happened between his arrival at Havre and his return to consciousness at the hospital in Boulogne except a vague notion of arms and legs flying in the air, of which he frequently dreamed. I ascertained that he had been at Hill 60, battle of Neuve Chapelle. His brother had received a letter from him telling him that he was moving to the front, but he had no recollection of having written this letter. He could recall nothing that happened after his arrival at Havre. Reading the newspaper he saw the word Bailleul; he said he was familiar with the name as a place he had been at, but it was merely a word association, for he had no recollection of the place nor of anything that happened there.

Now it is a fact that trauma accompanied by horrifying circumstances, causing profound emotional shock and terror, has a much more intense effect on the mind than simple head injury would cause, in spite of the fact that for some time after the injured man may be unable to recall the circumstances. The terrifying dreams in this case persisted for months. But the only recollection he has of experiences during the period of anterograde and retrograde amnesia was of arms and legs flying in the air, of which he has a vague recollection.

[1] Lectures I. and II. were published in THE LANCET of Feb. 12th (p. 331) and 26th (p. 441) respectively.

AMNESIA.

Memory is the storing away of perceptual experiences out of consciousness, and recollection is reviving by will and association the images of those experiences in consciousness. Some of these patients after they have recovered from the shock and are convalescent are able to revive in consciousness the events which happened. A great psychic feature of "commotio cerebri" from shell shock is the resulting inability of the brain to exercise sustained attention on account of the mental fatigue which occurs, and rest is imposed by the feeling of weariness and various forms of headache or discomfort. Again, irresolution and indecision is a frequent result of shell shock, whether induced suddenly or after prolonged exposure to shell fire and the stress of trench warfare. This is a serious disability in officers and non-commissioned officers placed in positions of responsibility. The condition is often aggravated by insomnia, anxiety, and worry, for they are quite conscious of their mental disability and filled with apprehension of making mistakes. Commanding officers often show commendable discretion in sending such men home for leave and thus avert a serious nervous breakdown.

Loss of memory may be a complete loss of power of recollection and of recognition. Consciousness, except for the immediate present perception, may be a blank, and there is in such cases, as a rule, no art to find the mind's complexion in the face, for a patient so afflicted exhibits a dazed, mindless expression. Three cases in particular I will cite as exhibiting this intense form of amnesia.

One case was a sapper who upon admission could give no information himself; we learnt from a comrade he had been blown up in a trench. He could not recollect his own name; he did not recognise his name when it was written; he did not know the season of the year; he could not recognise any coins except a half-crown, but he possessed this coin which had just been given him. He did not recollect anything that was told him, so that his memory for recent events as well as for the past was lost. He had a dazed expression, exophthalmos of the right eye, and enlargement of the thyroid, especially of the right lobe. This man rapidly improved and recovered completely.

Another case was remarkable in several ways.

The patient's mind was a complete blank, and this condition was reflected in a dazed, mindless, mask-like expression. When asked where he lived he said W——; he did not know it was in the West Riding. He did not know the address of his home, and when shown a letter from his father with the address on the top he did not recognise it or his father's handwriting. When shown a photograph of his home with a group of his father, mother, and three brothers and himself in front of it, he maintained the same wondering, dazed expression, and failed to recognise the nature of the picture. His father had heard from a comrade that he had been buried by the explosion of a shell in the trench; he had been unconscious for some time and lost his speech. We heard from his father that he was a good musician, and I said to him, "G——, I hear you are a good musician," and I asked him if he could play the piano or sing; there was the same wondering, bewildered look, and he muttered something which was to the effect that he could not sing or play. Three days later I said, "Come, you can whistle 'God Save the King.'" He took no notice, but upon pressing him he looked up and a glint appeared in his eyes, and he said, "You start me." I whistled the first bar, he took it up, and whistled it admirably. I then asked him to whistle "Tipperary," but he could not do it till I started him, and the same with several other tunes, but once started he had no difficulty, and I recognised from the admirable intonation that he was, as his father described him, an excellent musician. I could not, however, that day get him to start upon his own initiative any one of the tunes he had whistled. The next visit, three days later, I observed that his expression had changed. He smiled when I spoke to him, and I recognised clear evidence of a mind that had partly found itself. He could now whistle any of the tunes I had previously started him on by himself when I called for the tunes. I then said, "Come along to the piano." He came, and I got him to sit down in front of it. I said, "Play." He looked at the instrument with a blank expression, as if he had never seen such a thing before, and I could not get him even to put his fingers on the keys. I then took one of his hands, and, holding his forefinger, I made him play the melody of "Tipperary." He looked at me, and again I noticed a glint in the eye and a change of his blank expression indicative of association and recollective memories. He put his other hand on the keys and played a few chords. I went away feeling confident that his musical talent would reveal itself. He played for half an hour while I was in the ward without a single discord. The next time I came he was able to play any music set before him. His associative memory and recollection of music was in advance of other associative memories. Thus eight months after he had recovered his musical memory he had very imperfectly recovered his memory of elementary facts regarding his profession of a land surveyor—e.g., he could not tell me how many poles there were to a rood—and there was still a tendency to a vacant mindless expression and prolonged reaction time as shown by delay and slowness in responding to questions as if there were a difficulty in linking up the necessary associations.

This early return of the musical memory happened also in another severe case of amnesia which I will briefly relate.

This patient was admitted for shell shock. He had almost a complete loss of recollection of all the incidents of his past life except some experiences of early life, such as where he went to school. His powers of recognition were limited to knowing his parents. He had a bewildered vacant expression and a slow reaction to questions; when interrogated his countenance assumed a puzzled aspect as of one trying to recollect. His memory for recent events was absent, and persons that he had frequently or daily seen he failed to recognise. After four months he had made but little improvement. His memory of the past seemed to show the first signs of awakening in the associations of music. He recollected musicians that he had heard and songs that he had sung, although as in the above case he remembered nothing of his professional occupation. He said that while with his friends he had been asked to sing songs which they said he had sung before—that he did not recognise them at all when he saw them, that after they had been played to him two or three times he was afraid to begin as he felt he did not know them, but that once he started "he seemed to know without remembering" and got through quite well. One song he managed after it had been played through only once ("I hear you calling me"). I learnt from an officer who had been a school-fellow of this patient that he had suffered with a head injury in early life. This may have produced a *locus minoris resistentiæ* in his brain.

Every state of consciousness which is habitually repeated leaves an organic impression on the brain, by virtue of which that same state may be reproduced more readily at any future time in response to a suggestion fitted to excite it. But it may be asked, Why should the memory of music be more readily revived in consciousness than other experiences?—for example, those connected with the professions of these two young men before they entered the army. I should explain it by the fact that there can be no doubt that cognitions, whether pleasurable or painful, are more deeply graven on the mind and more firmly fixed in associative memory when associated with intense feeling. Music of all the arts appeals most to the emotions, and probably this is the reason why countless men and women, even the uneducated, can recall the words of songs and hymns when they hear the first bar of the musical setting.

Fixation and organisation of repeated experiences in the mind is shown in music, for a song that has been sung a number of times only requires the first word or note for it to be continued to the finish without any effort of consciousness, the last note or word uttered serving as the appropriate stimulus of the next; as in an instinct we have what is termed a chain reflex. This was strikingly exemplified in a soldier under my care who suffered with motor aphasia and right hemiplegia in consequence of a bullet wound of the brain.

The bullet entered the left side of the head and passed through the left fronto-central region of the brain and through the right orbit, destroying the eye; it also in its

passage must have cut through the left optic nerve or tract, for he was totally blind. This poor fellow was very cheerful and comprehended all that was said to him; thus, by feeling my tunic sleeve he recognised my rank, for when asked if I was a captain he expressed negation by "oot," colonel also by "oot," meaning "no," and major by "ah." He obeyed all commands. Now, curiously enough, although he was unable to express judgments only by "ah" and "oot," which correspond to yes and no, he was able to sing several songs through without difficulty provided the first word or bar of music was given. Thus, I stood beside him and hummed "'Tis a long way," and immediately he started the well-known chorus of "Tipperary," winding up with "Are we downhearted? No!" I then said, "Say Tipperary, Tom." He replied "oot," and he was unable to utter any of the words. It must be concluded either that the song had been repeated so often as to have become organised in both halves of the brain or in subcortical lower centres. A month later, when I saw him, he was able to walk and speak. Thus, given a half crown, he felt it, then tried the rim for milling on his teeth, and said, "Two shilling bit." When asked again, he corrected it with "Half crown." Given a penny, he tested it in the same way, and the unpleasant taste left in his mouth caused him to throw it down with all the signs of disgust, saying at the same time "Copper."

We know also that in amnesia rhymes are recalled very easily, especially if they have been learnt in early life.

PSYCHIC TRAUMA AND THE EFFECTS PRODUCED BY TERRIFYING DREAMS.

The frequency with which these cases of shell shock suffer with terrifying dreams at night and in the half-waking state points to the conclusion that a psychic trauma is exercising a powerful influence on the mind by the thoughts reverting to the terrifying experiences they have gone through, and their continuous influence on the subconscious mind may account partially for the terrified or vacant look of depression on the face, the cold blue hands, feeble pulse and respiration, sweats and tremors, some or all of which signs of fear the severer cases manifest. As these dreams cease to disturb sleep, so these manifestations of fear tend to pass off and give place to the sweet unconscious quiet of the mind. Occasionally during the waking state contemplation of the horrors seen provokes hallucinations or illusions which may lead to motor delirium or insane conduct. At least that is the interpretation I should put upon the symptomatology of the two following illustrative cases:—

1.—A captain, aged 20, was admitted under my care in a state of restless motor delirium; he moved continually in the bed, sat up, passing his hand across the forehead as if he were witnessing some horrifying sight, and muttering to himself; yet, when interrogated, he answered quite rationally. This motor delirium I associated with the continuous effects on the conscious and subconscious mind of the terrible experiences he had gone through. His whole company had been destroyed, and, while talking to a brother officer, the latter had half his head blown off by a piece of a shell. The patient improved very much, but a relapse occurred after a night disturbed by terrifying dreams. He recovered sufficiently in a week to go out.

2. *Paroxysmal attacks of maniacal excitement following shell shock.*—A young man, aged 19, was admitted suffering from shock, due to emotional stress and shell-fire. He suffered with terrifying dreams, and after he had been in the hospital a short time he developed sudden paroxysmal attacks of maniacal excitement. The first attack occurred suddenly. One afternoon he had been helping as usual in the kitchen, and then he went and lay down on his bed and apparently went to sleep; he suddenly woke with a startled, terrified look, became flushed in the face, sweated profusely, and made for the door as if to get away from some terrifying conditions. He was with difficulty restrained. He remained in this excited state, glaring rapidly from side to side, giving one the impression that he was suffering from terrifying hallucinations of sight and hearing, although he would make no response to interrogation. He did not recognise his wife, the doctors, or the sisters. Once when I, accompanied by two medical officers in uniform (strangers), came up to speak to him, he became violently agitated, as if some terrifying conditions had been aroused by the sight of the uniforms; the face was flushed and he sweated so profusely that the perspiration dripped in a stream off his nose. The attacks would last from a few hours to a few days; they came on quite suddenly like an epileptic fit, and often without any apparent cause. They became more severe and frequent, and when we had moved the neurasthenic patients to the Grove Lane schools, he one day ran out of the building into the playground and attempted to get over the wall. He was brought back, and I saw him sitting in the ward on his bed; his head was buried in his hands. I spoke to him; he immediately got up, looked at me in the most terrified manner, and made for the door; it required four orderlies to restrain him, and he fought and kicked violently, exhibiting great strength and nervous energy. Much to my regret I found it necessary to have him sent to Napsbury. I have heard that he has made a complete recovery and been discharged. It may be mentioned that there was no history of epilepsy or insanity in the family obtainable. The case rather suggests the psychic equivalents of epilepsy in the attacks.

Fear in its depressing effects upon the mind and body plays a very important part in the production of a neurasthenic condition. Constant apprehension and anxiety causing sleeplessness, loss of appetite and power of assimilation, are productive of a mental and bodily state by which the constant danger and fear of death induces terror, and this may in a few instances so profoundly affect some individuals as to turn the hair white in a few days. Thus, one patient of mine, a mute, after being ten days in the trenches, found his hair had turned white. He was only 26, but there was a family predisposition to early change of the colour of the hair to grey. This reminds me of the familiar lines of Byron in the "Prisoner of Chillon":—

> My hair is grey, but not with years,
> Nor grew it white in a single night,
> As men have grown with sudden fears.

We do not know whether his hair turned white in a single night at the sudden emotional shock that made him mute.

Terror is contemplative fear; it is fear made more or less permanent by the imagination fixing in the memory past terrifying experiences, repressed in great measure by conscious activity of the mind during the waking state, but evident in the dreams which afflict nearly all these soldiers suffering from "shell shock" and trench warfare. Shakespeare has clearly indicated how dreams influence the minds of men and how they are based upon past experiences. Thus, Mercutio, in the description of Queen Mab, refers to the soldier's dreams in the following lines, which are as true to-day as when Shakespeare wrote them:—

> Sometime she driveth o'er a soldier's neck,
> And then dreams he of cutting foreign throats,
> Of breaches, ambuscadoes, Spanish blades,
> Of healths five fathom deep; and then anon
> Drums in his ear, at which he starts, and wakes;
> And, being thus frighted, swears a prayer or two,
> And sleeps again.

In addition to the revival of experiences of trench warfare, of hearing the shells burst and seeing the flash, of parapets being blown down, of being buried, of charging the enemy, soldiers often complain of a falling or sinking feeling; possibly it is to this that Shakespeare refers in the lines "of healths five fathom deep." Often in their dreams patients are heard to cry out and awaking find themselves in a cold sweat. Some officers have been heard to give commands to their men and urge them on to battle. Now it does not necessarily follow that these men who cry out or talk in their sleep and who obviously were dreaming can recollect their dreams; in fact, it is not a very uncommon thing for them to say they do not dream, although they say they have awakened with a start and found themselves in a cold sweat, indicating that they had been "thus frighted." A functional case of deaf mutism, who would narrate in writing his terrifying dreams, did not cry out as some mutes do, but systematically in his sleep went through the pantomime

of bayoneting the enemy, and even would get out of bed and look under, and of this performance he remembered nothing. He did not do this when hypnotised. Under an anæsthetic soldiers sometimes may perform the pantomime of such habitual acts as of raising the gun to the shoulder and pulling the trigger. Therefore, when Shakespeare says, "Dreams are born of fantasy, children of an idle brain," he was clearly referring to those dreams in which experiences of the past are so dissociated and linked up in incongruous association as to require careful analysis in order to show their origin. I could cite many instances, but two or three will suffice.

An officer who had served in South Africa told me that he had had a dream from which he awoke in a fright. He was in a mine passage at the front when he met a leper who came towards him. Upon questioning him and asking him if he could recall some period of his life in which his mind had been disturbed by a leper, he remembered that he and his comrades were much alarmed and vigorously protested against a leper being allowed to remain in an adjoining sangar. Evidently this had left a deep impression graven on the mind, the principal subject, the leper, was dissociated from concomitant experiences in the South African War, and became linked up with a recent terrifying experience of being in a mine passage, which likely enough was also an experience in which the emotion of fear occurred. Both incidents suffused with very strong feeling tone in all probability were deeply graven on the mind and became firmly fixed by subconscious association.

A sergeant who had been a schoolmaster was asked to write down his dreams by Captain W. Brown, who has charge of my cases at the Maudsley Hospital. The first was as follows:—

I appeared to be resting on the roadside when a woman (unknown) called me to see her husband's (a comrade) body which was about to be buried. I went to a field in which was a pit, and near the edge four or five dead bodies. In a hand-cart near by was a *legless body*, the head of which was hidden from sight by a slab of stone. (He had seen a *legless body* which was covered with a mackintosh sheet which he removed.) On moving the stone I found the body alive, and the head spoke to me imploring me to see that it was not buried. Burial party arrived, and I was myself about to be buried with legless body when I awoke.

The second dream was as follows:—

After spending an evening with a brother (dead 11 years ago) I was making my way home when a violent storm compelled me to take shelter in a kind of culvert, which latter turned into a quarry situated between two houses. Men were doing blasting operations in the quarry, and whilst watching them I saw great upheavals of rock and eventually the building all around collapsed (explosion of a mine). Amongst the débris were several mutilated bodies, the most prominent of which was *legless*. I tried to proceed to the body, but found that I myself was pinned down by masonry which had fallen on top of me. As I struggled to get free the whole scene appeared to change to a huge fire, everything being enveloped in flames, and through the flames I could still see the *legless body* which now bore the *head of my wife* who was calling for me. I was struggling to get free when *my mother* seemed to be coming to my assistance, and I awoke to find the nurses and orderlies standing over me.

It appears that the patient had been shouting in his sleep, beginning in a low voice and gradually becoming louder until eventually he was shrieking. The *legless body* occurred in all his dreams; the sight of this had evidently produced a profound emotional shock. He had worried a great deal about his wife who was much younger than himself, so that we have this incongruous association of the *legless body* and the *head* of his wife calling him, finally who more natural than *the mother* to come to his help. The emotional complex is not incongruous in this dream, for fear is linked up with the tender emotion.

SPEECH DEFECTS.

Various forms of speech defects are common; they are mutism, aphonia, stammering, stuttering, and verbal repetition. The most frequent speech defect is mutism. About 1 in 20 of those admitted with a history of shock due to high explosives, and having no visible signs of injury, suffer with mutism, but nevertheless are quite able, as a general rule, to write a lucid account of their experiences. Most of the men so afflicted are unable to whisper or produce any audible sound; thus there is no sound when they laugh. They are unable to whistle or to cough, and in severe cases there is difficulty of putting out the tongue and, in one case, of swallowing. About 35 cases of mutism have come under my observation; they have with one exception all recovered. Two very severe cases of "shell shock" which occurred in May, 1915, have only quite recently recovered their speech. The one that has not yet recovered, in spite of hypnotic suggestion, has not been affected more than a few months, so that it may be expected that he will recover.

Why should these men, whose silent thoughts are perfect, be unable to speak? They comprehend all that is said to them unless they are deaf; but it is quite clear that in these cases their internal language is unaffected, for they are able to express their thoughts and judgments perfectly well by writing, even if they are deaf. The mutism is therefore not due to an intellectual defect, nor is it due to volitional inhibition of language in silent thought. Hearing, the primary incitation to vocalisation and speech, is usually unaffected, yet they are unable to speak; they cannot even whisper, cough, whistle, or laugh aloud. Many who are unable to speak voluntarily yet call out in their dreams expressions they have used in trench warfare and battle. Sometimes this is followed by return of speech, but more often not. One man continually shouted out in his sleep, but he did not recover voluntary speech till enjoying the festivities of singing the old year out and the new year in, eight months after he suffered the shock. It was thought that his loss of speech might be connected with adenoids, and he was told that if these were removed under an anæsthetic he would certainly be cured, but in spite of the strong suggestion he did not recover his speech. In another case of a severe character the larynx was faradised, but it made no difference; in fact, it did harm, as it increased the emotional condition. The sudden and varied manner in which these mutes recover their power of articulate speech and phonation is indicative of a refractory condition of the voluntary cortical mechanism of phonation. In some cases there is a history of a blow on the chest—e.g., from a sandbag or of being buried and partially asphyxiated—and it is usual for the loss of speech to occur at the time of the shock. One patient, however, gave a history of difficult speech for two days after the shock; he lost his speech completely only after his vestibular reactions had been tested; while another, who after the same investigation became a deaf mute, recovered his speech upon hearing a man in the hospital say the word "Rose." He at once sat up and repeated the word, proving, as he said, "I could both speak and hear." Some of the earlier and more severe cases of shock followed by mutism were unable to expire forcibly enough to cough, to whistle, or to blow out a candle, but the less severe may be able to perform these acts and yet be unable to speak or whisper. The latter cases recover usually more quickly than the former, but sudden recovery may occur even in the severe cases. Thus a private who went to France October, 1914, on August 9th, 1915, was going to pick up a wounded comrade when a shell came and blew the wounded man to pieces, and he knew no more till about half an hour later, when

he found himself deaf and dumb. There evidently were two factors in the production of the symptoms—the physical and the psychical—and of the two the emotional shock was probably the greater. This patient was admitted under my care. Some weeks later his fellow soldiers thought he ought to hear and speak, and they adopted energetic measures to make him shout out for help. Two of them leathered him with a slipper and then nearly throttled him. He struggled and shouted "stop it." Another man dreamt he was falling over a cliff, shouted out, and recovered his speech. Another dreamt he was blown up by a trench mortar and shouted for help. Finding himself speaking he continued to speak aloud, and did not go to sleep again for fear he might lose his speech. Another man, a deaf mute, was heard to speak in his sleep. He was told by a comrade. He said, "I don't believe it." Some have suddenly recovered their speech by crying out when unexpectedly feeling physical or mental pain; for example, one man cried out when some boiling tea was spilt over him, another when he was held down and his feet tickled. In most cases it is the sudden and unexpected which restores the function of the vocal mechanism. Thus a mute sergeant saw some soldiers larking in a punt and he suddenly shouted out, "You will be over." Occasionally the stimulus of a well-known chorus has broken down the refractory condition in the psychic mechanism of the voice and the mute has surprised himself and others by finding himself singing. The recovery of speech may in some cases be only whispered speech—that is, aphasia supervenes. In other cases mutism is followed by stammering or stuttering. Such cases are often found on inquiry to have stammered, stuttered, or suffered with a hesitant speech at some time in their life prior to the shock. In a few cases such a speech defect seems to have definitely originated as a result of the shock. This mutism is due to emotional shock; it is a psychic rather than physical trauma in my judgment, for it in no way differs from the description of hysterical mutism thus described by Bastian: Some of the leading peculiarities of hysterical mutism are these. Its onset is very sudden, and often after a fright or some strong emotional disturbance. Sometimes it follows an hysterical seizure, either with or without paralysis of limbs. At other times it occurs without assignable cause, or it may be induced, as already stated, in some hypnotised persons by suggestion. The subjects of this disability are completely mute, presenting in this latter respect a notable contrast to ordinary aphasia, who so frequently make use of recurring utterances or articulate sounds of some kind. The intellect seems unimpaired, and they are able freely to express their thoughts by writing. Though the common movements of the lips, tongue, and palate are preserved, these parts (constituting the oral mechanism) are unable to act in the particular combinations needful for speech movements, in association with the other combinations of muscular action pertaining to the vocal mechanism.

Bastian[2] notes also that there may be more or less complete anæsthesia of the pharynx in hysterical mutism; this I have observed in some of the mutes. He notes that as in these soldier mutes hysterics may recover their speech suddenly as a result of a strong emotion, also as in the soldiers, recovery may be followed by stammering or stuttering.

Bastian refers to a case in which frequently recurring attacks of mutism were generally associated with blindness or deafness, one or both. These conditions are also observed associated with mutism in soldiers, the subjects of shell shock. He also cites the case of his own: a sailor who suffered with a great number of attacks of mutism (the first occurring as a result of fright) who previously had not suffered from any nervous disease and previously had led an active life in all parts of the world. We may therefore conclude that this mutism resulting after shell shock in no way differs from hysterical mutism. It appears, therefore, that there is nothing new in these functional disturbances and disabilities of speech and special senses except it be their severity and frequency in men the subject of shell shock.

PATHOGENESIS OF MUTISM.

We may now inquire into the pathogenesis of mutism. Charcot attempted to draw a distinction between aphonia and mutism. He adopted the doctrine of Marey and other physiologists that the larynx takes no part in whispered sounds. According to Charcot, therefore, aphonia (in which the power of whispering is preserved) is a result of a partial paralysis of the adductor muscles of the larynx; while as to hysterical mutism Charcot writes: "If the individual suffering from the affection is unable to whisper, it is not because he is aphonic, or rather because his vocal cords do not vibrate; it is not because he has lost the common movements of tongue and lips—you have seen that this patient was able to blow and whistle; it is because he lacks the ability to execute the proper specialised movements necessary for the articulation of words. In other terms he is deprived of the motor representations necessary for the calling into play of articulate speech." Charcot therefore believes the oral division of the speech mechanism only to be at fault in hysterical mutism. Wyllie maintains that whilst this may be so in some cases, in a second group it is the laryngeal division of the speech mechanism which is at fault, and in a third set of cases both oral and laryngeal mechanisms are simultaneously disabled. Bastian alludes to a remarkable case recorded by Guido Banti in which the individual lost his speech owing to a lesion of Broca's convolution but was able to write, and the general intelligence was not interfered with. Charcot considered hysterical mutism to be an instance of pure "motor aphasia" resulting from a functional trouble in Broca's region. Bastian, however, agrees with Wyllie that aphonia and mutism are most intimately related, differing in degrees only, "and the oral and vocal speech mechanisms are concerned in all speech mechanisms whether it is sonorous or whispered." Bastian considers that the clinical differences between simple aphasia and hysterical mutism force us to believe in the existence of a bilateral cortical disability in the third inferior frontal convolution.

Sir Charles Bell in his great work on the Expression of the Emotions first drew attention to the influence which powerful emotions exercise upon the respiration. A part of the cortex controls the mechanism of breathing in the production of all voluntary audible sounds, and this, like the movements of the vocal cords, is represented in both halves of the brain, for the muscles of the two sides of the body which control the breath and

[2] Bastian "On Aphasia and Other Speech Defects," p. 126.

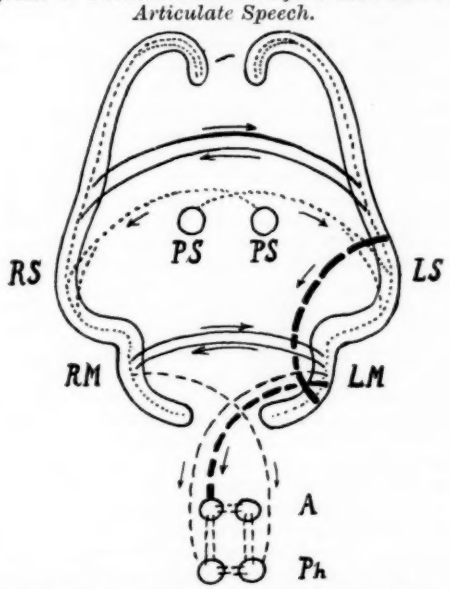
phonation always act synergically and never work independently. In the oral division of speech mechanism the muscles of one side never act independently of the other. Bastian is probably, therefore, correct in asserting that it is a functional disability of cortical structures in both hemispheres. Whether he is right in asserting that it may be localised in the third inferior frontal is another matter. I believe this mutism is due to functional paralysis of the voluntary central nervous centres which control phonation, for many cases are not only unable to talk or whisper, but to whistle, to utter a cry or to laugh aloud. I examined one case by means of X rays and found the diaphragm could by no effort of the will be made to descend in a way sufficient to so fill the lungs as to produce an adequate expiratory blast for coughing. He acquired this power later and was able to take a fairly deep inspiration, but he could not talk, whisper, or whistle; even instinctive audible sounds such as a cough, a cry, or a sonorous laugh he was unable to produce; the voluntary synergic mechanism of phonation was dissociated or inhibited; the failure was in the cortex, for this mute, like many others, talked and uttered cries in his sleep. The return of tone in the voluntary cough is usually a herald of the return of speech.

But why should the mute be able to express his thoughts in writing but not by verbal speech? Writing, like articulate speech, is acquired by imitation; they are part of the social heritage of mankind; the only human heritage connected with this acquired language is the employment of the left hemisphere in the great majority of human beings as the active partner in controlling the lower motor centres of articulate and graphic expression of internal language, upon which thought, reason, and intelligence depend. But an individual who heard no articulate language would speak no articulate language; still, he could express all the primitive emotions and passions by gesture, expression of eye and face, accompanied by modulated audible sounds. This primitive language is universal and understood by all mankind. It is the foundation upon which articulate language rests for expressing the emotions and passions. Without modulation of the voice articulate language expresses no more feeling than graphic language. Now the images required for the production of the voluntary impulses necessary for articulate speech by habit are initiated primarily in the auditory and glosso-kinæsthetic centres of the left hemisphere, but the mental images of audible sounds by which the voice is modulated to express the emotions are initiated in an inborn pre-organised mechanism in both hemispheres (see figure).

In support of this may be mentioned the fact noted by Galton in his "History of Twins," that whereas identical twins seldom showed similarity of character in handwriting, the vocal intonation was usually similar. Again, it is true, as Lucretius observes in "De Rerum Naturæ," that not only the features but the voice and hair of forefathers are repeated.

Without the mechanism of phonation audible articulate speech, even whispering, is impossible. Two grades of speech defects may be observed in hysteria and as a result of emotional shock—viz., aphonia, in which phonation is extremely weak, and mutism, which is a complete loss of the power of phonation. Many mutes first recover the power of whispering. Moreover, experiments on the higher apes show that stimulation of the laryngeal centre produces bilateral movements; there is then bilateral representation of the abductors and adductors of the vocal cords. Likewise there is bilateral representation of the muscles which control the breath in phonation. (See figure.)

Diagram to Illustrate the Two-fold Mechanism of Articulate Speech.



A, represents the lower articulator nervous mechanism. *Ph*, the lower phonator nervous mechanism. *L M*, the left motor higher centre of articulation. *R M*, the right motor higher centre of articulation. *L S*, the left sensory higher centre of articulation. *R S*, the right sensory higher centre of articulation. The cortical centres of the speech zone in the two hemispheres are connected by fibres of the corpus callosum indicated by arrows. *P S* peripheral auditory nervous mechanism. Connected with the auditory centre of each hemisphere though mainly with the opposite. It will be observed that the thick interrupted line indicates the *acquired* path of voluntary control over the articulator mechanism in right-handed persons. If this is damaged in early life the right hemisphere becomes the active partner in the production of articulate speech. We are quite conscious of all the movements of the muscles of the tongue, the lips, the jaw and the soft palate, by which the escape of the breath is modified so as to produce articulate sounds and language. We are conscious only of the pitch and in a measure of the loudness of the voice by the sense of hearing. The production of audible sounds varying in pitch and loudness expresses the emotions; they are voluntarily initiated in both hemispheres and control equally both lower centres of phonation, laryngeal and respiratory.

Consequently we must suppose that mutism is caused by fear producing an emotional shock depressing the activities of the whole of the cortical structures connected with phonation and production of audible sounds.

But we know by the terrifying dreams from which these soldiers suffer that this fear is contemplative and by imagination is continually operating consciously and unconsciously. This terror keeps up its effects, and a refractory phase is induced thereby in the cortical structures controlling voluntary phonation. We speak of being paralysed by fear, and just as *fixed idea* of paralysis of a limb maintains the paralysis by inhibiting volition, so fear is suddenly followed by a loss of phonation, and a paralysis of phonation is established by conscious and subconscious revival of the terrifying scenes in the mind, so that a *fixed idea* is induced thereby in the cortical structures controlling voluntary phonation. We speak of being paralysed by fear, the tongue clave to the roof of his mouth. If fear is continuous, maintained by the imagination, and consciously and subconsciously revived in the mind

a *fixed idea* of paralysis of phonation is established in conjunction, perchance, with physical manifestations of fear commonly met with in mutes. But attention becomes centred consciously and subconsciously on this "fixed idea"; a vicious circle is established, and the refractory state in the cortical mechanism of phonation we have seen is broken down by a sudden emotional disturbance, in many cases trivial, but attended with surprise taking attention off its guard.

I have hitherto dealt with some of the more important effects upon the mind produced by shell shock, but I will now consider briefly some of the other symptoms complained of, and among the most constant is headache.

HEADACHE.

So long as the patient is in a state of shock he feels heavy and dazed and does not suffer great pain as a rule, but later, as consciousness becomes less clouded, so the headache which invariably follows shell shock becomes more acute.

The commonest situation for the maximum pain is the occipital region and the back of the neck; it is often described as a tight compression like a helmet—the helmet of Minerva. The pain may be in the frontal region over one or both eyes, over the vertex, in one or both temples, or at the back of the eyes. The pain is variously described as burning, stabbing, or a heavy dull dizzy feeling, a feeling like a tight hat, or a red-hot wire being run through the temples. It is worse at night, especially upon lying down and trying to sleep. It seems to be correlated with thoughts of terrifying scenes and is increased when the mind dwells upon these, and it is increased by the mind trying to thrust them aside. The headache has in a few cases increased when the mute man tries to speak, or the deaf to listen, in fact in any condition in which the mind is trying to concentrate attention. A few cases have complained of a severe headache for some hours after the recovery of speech or hearing.

CARDIAC AND VASO-MOTOR DISTURBANCES.

The patients often complain of palpitation, breathlessness on exertion, and præcordial pain. There may be physical signs of dilatation and tachycardia. The pulse is often small and increased in frequency; the blood pressure is never high. It was often below 110 and never above 135. The hands are frequently blue or mottled and cold, and often there is cold, clammy sweat of the palms. The surface temperature may be very low; in one case it was only 16° F. The temperature of the hands varied considerably according to the temperature of the room.

SENSORY DISTURBANCES.

Cutaneous and deep sensibility of the body may be affected, and in severe cases of shock I have occasionally found loss of skin sensibility to all forms of stimulus, pricking, heat and cold, and touch, also of deep sensibility, pressure of muscles, movement of joints, and bone sensibility to vibration of tuning-fork. The extent and degree of loss of sensibility is variable, and even in one case where the absence of response to stimulus was most marked the limits varied and were not well defined above. The loss of sensibility in this case, however, was pronounced to all forms of stimulus in the lower extremities, although occasionally after much delay and strong stimulation a response was obtained in the upper portions of the lower limbs. Even eight months after admission there was a stocking anæsthesia in this case. Hyperæsthesia is even more common than anæsthesia, and even the lightest touch gives rise to apprehension and movements of withdrawal in severe cases.

HEARING AND VISION.

Hearing, like speech, and often with speech, is completely lost, so that there is a condition of functional deaf-mutism. Sometimes speech returns before hearing, or the converse may happen. It is not at all infrequent for a man to be deaf on one side and not the other, and the history often shows in these cases that a shell has burst on this side of the man; the tympanum may be ruptured or the drum is "damped off" by wax forcibly driven against it. Auditory hallucinations are not uncommon, and the patients complain of hearing the bursting of shells, of the noise of shells coming, of bullets whizzing, and of whistles blowing. Many complain of a drumming noise in the ears, especially when they suffer with headache, but this may be replaced by clicking or ticking. Hyperacusis, or extreme sensibility to sound, is a common and very troublesome symptom, making the patient miserable and apprehensive; it also excites or aggravates headache. I found that many relapses occurred during the Zeppelin raid, and one man a sergeant, who had been a professional pugilist of great renown, suffered extremely, so that the noise of the click of billiard balls irritated him to such a degree that he would protest forcibly against the game continuing. His fellow patients found that they could easily cause him to flee by taking their slippers off and banging them on the ground sufficient to produce a sharp loud noise. This case was remarkable in another way; since he had been terrified by the exploding bombs dropped by the Zeppelin he had developed a curious tic, which took the form of jerky purposive movements of the shoulders and head, as if to avoid a blow, and facial grimaces such as a pugilist would assume in a fight.

Vision.—The sight may be greatly affected during the acute stage, but it is commoner for the patient to complain of "smoky vision." Again, failure of accommodation and sluggish light reflex are not uncommon in the acute stages. It may in some cases be weeks before the patient is able to read large print. Occasionally there is diminution of the visual fields. Photophobia was met with in some cases, but usually this was due to the irritation of "gas," or occasionally as the result of inflammation due to particles of earth or metal in the eyes; this photophobia was often associated with blepharospasm, often very persistent.

A few cases of functional blindness have been admitted, but these cases more often are sent to special hospitals. One case was of interest. A shell burst near a man while he was attending to a wounded comrade. He managed to drag the wounded man into a culvert, but then found he was quite unable to see. Another wounded man came into the culvert and helped him to get out. The emotional shock and the darkness of the culvert it appears were responsible for the loss of function.

Hyperæsthesia is a very common symptom. I have at present a severe case of great interest under my care.

A man was sent down from the clearing station on Feb. 10th, 1916; he had been blown up and buried; he was blind, deaf, and mute. He was [sent from the St. John

Ambulance Hospital, France, to the 4th London, and admitted on Feb. 29th. When I saw him he was lying in bed on his side, with his legs curled up. He took no notice of any sounds however loud, he did not speak, and he could not see. This was the condition noted when in hospital in France. When I examined him he could be made to open his eyes, and it was found that the pupils reacted to light; he took no notice of a strong light, nor did he reflexly close the eyes when a blow was suddenly aimed at the face. The slightest touch, however, aroused an immediate defensive movement or withdrawal of the part. It was difficult to test the reflexes, but I failed to obtain any deep reflexes of the lower extremity, and I could not obtain a plantar response. I saw him fed with milk; at first he resented the nozzle of the feeder touching his lips, but as soon as the milk entered his mouth he swallowed it. I understand there has been no difficulty in feeding him. He responds to the calls of nature, and does not wet the bed. He is even more sensitive and apprehensive to touch than the deaf-mute, who also showed fear of being injured when touched. The next day while suffering from the pain of an enema, which was relieving the bowels, he somewhat suddenly regained his sight. He looked around in a bewildered manner, then burst into tears. The next day he was able to write. His powers of recognition were good, but he had a complete gap in his memory of the whole time he was in France.

This blind deaf-mute, then, is conscious of the external world only by tactile and kinæsthetic perceptual impressions, consequently the mind is focussed on them in his life of external relation. Owing to the effect of past terrifying experiences constantly revived in dreams and very possibly, being blind, by hallucinations, his mind is constantly suffused with fear and apprehension of danger, hence the protective reactions of withdrawal of a part touched are greatly exaggerated.

TREMORS.

Tremors are extremely common and constitute a serious disability; they are coarse and fine, continuous during the waking state, absent in sleep; they may be general, affecting arms, legs, and head; they may affect one half of the body, both lower limbs or both upper limbs. They are most often rhythmical coarse tremors, very like those of paralysis agitans; sometimes they are increased by intention so as to resemble disseminated sclerosis; sometimes they are fine tremors like exophthalmic goitre. A true functional tremor as distinguished from the malingerer's tremor is not altered in its rhythm by taking the individual's attention away—e.g., by making him count slowly and quickly.

The following was a remarkable case of functional tremor completely cured by strong suggestion:—

Gunner ——, aged 39, 15 years' service, R.F.A., 49 B. Out in France 10 months. Admitted to the 4th London in January, 1916. Last August, between Ypres and Flamentières, about 3 o'clock in the morning a big shell exploded near him and he remembered no more until he found himself, 14 days later, in the military hospital, Chatham. The colonel told him he was lucky to be there at all. He believes the shell killed a number of his comrades. He was afterwards transferred to Colchester. When I examined him he was sitting in a chair; legs, hands, and jaw were in continuous coarse rhythmical tremors like that of paralysis agitans, which became exaggerated when he was spoken to. Every now and again he starts and looks upwards and laterally as if he feared a shell would drop on him; his hearing is extremely acute, and the firing of the guns at Woolwich causes him alarm. In narrating his history there is a constant repetition of words. He dreams of shells bursting, and a fellow patient says he has disturbed sleep, groans, and utters moans and sounds, and wakes up with a start at the least noise. It is very difficult to test the reflexes on account of the continuous tremor. The face is flushed, the palms sweating, but the surface temperature is not lower than normal. The pulse is good. *Sensibility and special senses:* He does not respond to the prick of a needle on the lower limbs or left arm and hand; but after delay responds immediately on the right hand. Pricking of the face causes immediate response. He does not feel the vibration of the tuning-fork on the feet, legs, or hands, but does on the forehead, and there was a marked contrast between the bone sensibility of these parts. He hears the fork quite well at 6 inches from the ears. He has some difficulty in recognising colours: he picked up the blue box, but was a long time before he picked up the red. His sense of weight was not abolished, but it was difficult to test because of the tremor which became of much greater amplitude, resembling in fact the intentional tremor of disseminated sclerosis, and caused the pennies to rattle in the boxes. It is possible that his judgment of the relative weights was aided by hearing the pennies rattle. He could taste very bitter fluids, but could not recognise vinegar, salt, or sapid fluids. The sense of smell was considerably affected, for he did not recognise tincture of assafœtida, otto of roses, and oil of cloves; he smelt nitrite of amyl and recognised strong ammonia and glacial acetic acid, but they seemed to have much less stimulating effect than might have been expected. Having made a most careful examination I said to this patient, "I am sure there is no organic disease, and you will get perfectly well and lose these tremors in a few days," which he did. I employed him for a short time as an object lesson to other new cases with tremors. He is at a convalescent home now, a happy being.

Various tics have been observed which, however, may be found by inquiry to have existed prior to war experiences and been merely exaggerated by shock. Torticollis, facial tics, and blepharospasms have been observed. Choreiform movements have been noted, and often these are due to unconscious imitation of other patients affected.

FUNCTIONAL PARALYSES.—GAIT.

Functional paralyses are not at all uncommon, the most common being paraplegia, but hemiplegia and monoplegia are also frequently met with. A history shows that suggestion of injury plays a very important part in causing and maintaining a fixed idea of paralysis. Thus a man is blown up and falls on his shoulder; although the injury is not sufficient to prevent him moving his arm the limb becomes paralysed. In several a simple bruise of the hip led to functional paralysis of the leg, or falling on one side of the body that side becomes hemiplegic and remains so unless the *fixed idea* is abolished. Paraplegia frequently arises from an injury of the back. In these cases of functional paraplegia either the plantar reflex is flexor or no reflex response is obtained; the knee-jerks are exaggerated and an ankle clonus may be obtained, but it is not a true rhythmical clonus. The sphincters are not affected and the deep sensibility is usually unaffected; thus, they say, they feel the vibration of the tuning-fork.

There are many different *gaits*. There is a refusal to attempt to walk. There is a dancing tremor as if the legs were springs of coiled wire. Owing to the fear of raising the foot from the ground the patient shuffles the feet along the ground on a wide base, making only small progressive advances. The patient may drag both soles of the feet along the ground one after the other. Another gait is that assumed by the patient who thinks he can only walk by means of supports afforded by two sticks. He thus comes to assume a persistent leaning forward posture even when at rest. Two such cases have recently been admitted under my care almost bent double through being allowed to think they could not walk without the aid of forward supports, making them into quadrupeds. Having assured myself these were functional cases, I said, "Take away those sticks: I want to see which of you two will first be erect again." In a week they were almost well. Likewise with a hemiplegic who for 13 weeks had thought he was paralysed and had been given crutches I said, "Take away those crutches." In a few days the fixed idea of hemiplegia was entirely abolished, and in a week

from a paralysed miserable being he was a cheerful healthy man.

I am instituting a museum of crutches, sticks, and other supports of patients admitted from hospitals where they have been many weeks and months, only waiting to be assured that there was nothing the matter with them.

THE ATMOSPHERE OF CURE.

Be cheerful and look cheerful is the note that should ever be sounded to these functional cases. Sympathy should not be misplaced although it should be shown to all these poor fellows who have a fixed idea of never recovering: it is not their fault, it is a real thing to them, and no one could be more grateful than these cases of functional nervous disability for cheery words. I use many of these cases that have recovered as object-lessons. I do not find hypnosis or psychanalysis necessary or even desirable; only common-sense and interest in the comfort, welfare, and amusement of these neurotic patients are necessary for their recovery. The conditions at the Maudsley Hospital will be all that can be desired. There are light airy wards, and day rooms for meals and recreation, plenty of single rooms for the isolation of cases that are troubled with noises or require special attention; and especially valuable are the baths, so that every soldier can get a warm or cold spray bath every day. The warm baths, and especially the continuous warm baths, of which there are eight, are especially valuable for promoting the action of the skin, of relaxing the tired muscles, and by their soothing influence helping to induce sleep, so that less hypnotics are required to be employed.

Diversion of the mind from the recollection of their terrifying experiences is essential for successful treatment. This can be best accomplished by the provision of every form of healthy indoor and out-door amusements—e.g., books, games, and music. These are better in a recreation hall where convalescent patients can enjoy themselves. I have alluded to the hypersensibility of many of these patients to sounds, consequently neither gramophones nor billiards should be within the hearing of these acute cases. The out-patients' waiting-room will be utilised at the Maudsley Hospital for recreation. A full-sized billiard table with all accessories has been anonymously presented to me by a lady, and I hope others of the charitable public interested in the welfare of these poor fellows suffering with shell shock will help to provide healthy amusements and games so essential to successful treatment.

Mr. President and Gentlemen, I began these lectures by stating that a new epoch in the history of war had arisen in consequence of the terrible new experiences resulting from the use of high explosives. Some of you may have read "Aunt Sarah and the War," and remember the following passage from a letter of Captain Tudor, in which he draws a comparison between insignificant home troubles and the experiences at the front. "Lord, if they could listen to the unceasing shells that drive some men deaf, some men blind, some men dumb, and other men crazy, and these all of them MEN, with a newly earned meaning in the word; for there's a new meaning now in many an old word. We shall want a brand-new Dictionary, and its deuced hard on good old Murray, that just at the end of his great work he should need to begin it over again."

BERI-BERI, WITH SPECIAL REFERENCE TO PROPHYLAXIS AND TREATMENT.

BY WILLIAM HENRY WILLCOX, M.D. LOND., F.R.C.P. LOND.,

LIEUTENANT-COLONEL, R.A.M.C.; CONSULTING PHYSICIAN TO MEDITERRANEAN EXPEDITIONARY FORCE; PHYSICIAN TO OUT-PATIENTS, ST. MARY'S HOSPITAL, LONDON.

THE following paper is based upon the careful clinical study of over 50 cases of beri-beri seen during the latter half of the past year in the Mediterranean area. The cases were of especial interest as regards their etiology.

It is generally recognised that diet plays a very important part in the causation of beri-beri, and some writers—e.g., Osler in the last edition of the "Principles and Practice of Medicine"—go so far as definitely to classify beri-beri among such diseases as scurvy as a "deficiency disease."

In the cases seen many of them showed that in addition to the etiological factor of diet there was some toxic influence at work, such as a previous attack of dysentery, chronic diarrhœa, purpura, or jaundice. Thus in cases in British troops from the Dardanelles area 26 cases of beri-beri were seen. Of these, 12 had recently, before the onset of symptoms, suffered from jaundice. One patient suffered from paratyphoid fever A associated with slight jaundice; another from a slight attack of jaundice three weeks *after* the onset of beri-beri. Five patients had suffered from previous chronic diarrhœa or dysentery and 3 from purpura.

In 11 cases of beri-beri seen in British troops from the Mesopotamia district 1 had suffered from recent jaundice previous to the attack, and 1 from chronic diarrhœa.

The dietetic conditions in the two series of cases previous to the onset of the disease were similar, except that in the Mesopotamia series of cases, owing to difficulties unavoidable to an expedition of that nature, the dietetic factor undoubtedly played a more important part than in the Dardanelles cases.

Clinically and pathologically there is not the slightest doubt that all the above cases were typical cases of beri-beri.

Of the 26 Dardanelles cases, 21 had suffered from some toxic factor associated with recent jaundice, diarrhœa, paratyphoid fever, or purpura. It must be remembered, however, that the diet on campaign given in hospital for diseases like epidemic jaundice, diarrhœa, dysentery, and paratyphoid fever, while being suitable for the treatment of these diseases, is nevertheless very deficient in anti-beri-beri vitamines, and thus if one regards beri-beri as due entirely to dietetic influences these cases cannot be excluded as beri-beri cases, since the diet associated with the treatment of the diseases in question might undoubtedly cause beri-beri in a patient who, as regards his previous dietary, had only a small margin as regards his protection *qua* diet against beri-beri.

In the Mesopotamia cases the toxic factor was quite unimportant and calls for no consideration, since the occurrence of toxic factors would undoubtedly have been as great amongst any other disease occurring in these troops.

Symptoms.

In the cases observed which were almost entirely of the œdematous or wet type, the earliest symptom noticed was usually some weakness of the legs, or

shortness of breath on exertion, generally accompanied by malaise and anorexia. In a few cases the œdema of the legs was the first symptom observed, but it must be remembered that the detection of a preliminary symptom is dependent on the subjective observation and intelligence of a patient, and can only be elicited by means of "leading questions." Paræsthesia of the legs occurred quite early in some cases, patients complaining of numbness, "pins and needles" and alteration in the tactile sense. The weakness of the legs was shown by inability to march or walk properly, the gait being somewhat unsteady. Probably one of the earliest evidences of weakness of the legs would be shown by the "squatting test," which was quite too much for any of the patients in my series to perform at the time of examination. This test consists in the patient bending his knees and separating them while standing so that he assumes a squatting position with the buttocks a few inches from the ground. A beri-beri patient is unable to raise himself up from this position, and often attempts to do so by climbing up his knees with his hands very much like a patient suffering from pseudo-hypertrophic muscular atrophy. The test should be remembered by regimental officers as a simple way of picking out early beri-beri cases from amongst a body of troops who may be likely to be affected with the disease. One patient said that he first noticed that something was wrong because he could not step up on to the firing ledge of his trench. For a few days he was lifted up there by his comrades and supported while he did his allotted task. He soon became too weak to walk and then became a hospital patient.

Dyspepsia was an early symptom in most of my cases; it was not of a severe type, and consisted of epigastric discomfort and flatulence. There was commonly definite tenderness on palpation over the duodenum.

Swelling of the legs and feet was a marked symptom in many of the cases, and in some the œdema extended on to the thighs, scrotum, and abdomen. In severe cases there may be œdema over the sternum. In some cases the œdema was slight. It must be remembered that one important factor in causing the œdema is the standing position. In mild cases after resting in bed and appropriate treatment the œdema quickly clears up.

Nervous symptoms.—Paræsthesia has been noted above. Anæsthesia and analgesia occurred in all the cases; there was inability to distinguish on the feet and legs the difference between a pin-prick and finger touch when the eyes were closed. The extent of this anæsthesia varied in different cases: in some cases the feet only were affected, in others the feet and legs, and in some cases the anæsthesia of the feet and legs was complete. In a few cases the upper extremities were affected. All cases showed definite weakness of the legs and marked wasting occurred in all. The extensor muscles were affected more than the flexors, so that foot- and wrist-drop were present in cases showing severe nervous symptoms. There was not opportunity to test the electrical reactions of the affected muscles.

Tenderness of the calves on pressure was present in all the cases. In some cases cramps in the calves occurred.

Gait.—This was unsteady in type and there was a tendency for the toes to drop and render walking difficult; the gait was somewhat high-stepping in type in some cases. The gait had not the stamping character peculiar to tabes dorsalis.

Some cases—e.g., 2 out of the 26 Dardanelles cases, showed definite circumoral anæsthesia.

Laryngeal paresis occurred in 2 of the 26 Dardanelles cases, and in 2 of the 11 Mesopotamia cases; there was loss of voice for some days.

Pharyngeal paresis shown by difficulty in swallowing, especially marked for liquids, occurred in 1 of the Mesopotamia cases and in 1 of the Dardanelles cases.

Reflexes.—The knee-jerks may be increased in the first few days. They are soon, however, diminished and become quite lost even with reinforcement by pulling the hands apart, the fingers being opposed.

An interesting symptom often present in beri-beri cases is that the knee-jerk disappears before the Achilles jerk, and when both reflexes are lost the Achilles jerk is recovered before the knee-jerk when the patient improves. This sign occurred in several of the cases of each series. It was first pointed out to me by Lieutenant-Colonel de Crespigny, R.A.M.C., of No. 3 Australian General Hospital. I do not believe that it has been previously published.

Late signs in some of the cases showing severe multiple neuritis may be contractures of the muscles—e.g., those of the calf causing a condition of talipes equinus; these are not common.

Cardio-vascular symptoms.—The pulse is usually quickened, especially on exertion. In severe cases it may be feeble and irregular. Palpitation is a common symptom. The cardiac dullness is increased, both on the right and left sides. The heart shows signs of myocardial degeneration. The impulse is feeble, and the first sound of the heart is short and poor in quality. Often a systolic murmur replaces the first sound of the heart more or less completely. There may be a definite galloping rhythm in severe cases. Mild cases may show reduplication of the second sound of the heart. In the 26 Dardanelles cases 12 showed signs of marked cardiac involvement. In four of the cases the cardiac symptoms were of a very severe type, there being marked dilatation, irregularity, and galloping rhythm.

Pyrexia is absent in beri-beri cases unless they are associated with intercurrent affections. Vomiting occurred in a few cases; it is a bad sign and many of the cases terminate fatally. Loss of weight was marked in most of the cases.

Other Types of Beri-beri.

1. *The acute pernicious type.*—In this type sudden death without previous complaint of illness may occur and the post-mortem examination show signs of beri-beri. Usually anorexia, nausea, vomiting, epigastric discomfort and tenderness occur first, and these are quickly followed by marked cardiac symptoms. Dropsy usually occurs and also some signs of neuritis, such as anæsthesia, hyperæsthesia, paresis, or paralysis. The patient dies from severe cardiac symptoms within a few days.

2. *The dry or atrophic form of beri-beri.*—This is similar in its symptoms to the œdematous type, except that dropsy is absent. Marked wasting is a prominent feature. One of the Dardanelles cases was of this type.

3. *The rudimentary form.*—In this type the symptoms are slight. The patient complains of malaise, dyspepsia with paræsthesia and anæsthesia of the lower extremities, and some loss of power. The symptoms rapidly clear up under appropriate treatment.

Post-mortem Signs.

Three of the Dardanelles patients died. Careful post-mortem examinations were made on two of them. The following were the special post-mortem

signs found in these two cases: Very marked œdema of the lower extremities, and to a slight extent on the trunk and upper extremities. The stomach showed marked redness of the mucous membrane, which was most marked in the pyloric half where the colour was deep crimson. The duodenum showed intense crimson congestion of the mucosa, most marked in the upper part. The jejunum and ileum showed marked congestion, some petechiæ being present in the ileum. The large intestine showed congestion. Numerous small hæmorrhagic patches about half an inch in diameter were present in the wall of the ascending colon. The mesenteric glands showed slight enlargement. The heart showed marked dilatation of the right and left cavities. No valvular disease was present. The lungs showed œdema and congestion of bases. The kidneys were congested and showed some œdema. The liver was congested and showed slight nutmeg change. The popliteal nerves were removed for subsequent examination for degenerative changes.

Etiology.

The etiology of beri-beri is one of the most interesting problems in medicine. A great deal of original work has been done on this disease during the last 20 years, and the work recently done by Funk, Fraser, Stanton, Eykman, and Cooper has definitely established the important fact that beri-beri is essentially a deficiency disease.

Gowland Hopkins in his recent studies of the important part played by vitamines in metabolism has confirmed the conclusions of the above mentioned investigators. Modern research on metabolism has shown that a diet of pure protein, fats, and carbohydrates, with due admixtures of salts and water, is not sufficient to maintain health, though the quantities given may be theoretically correct. A growing animal fed on the above dietary will cease to grow and will develop some deficiency disease, such as polyneuritis (beri-beri) or scurvy. Some other addition is necessary in the dietary if the animal is to maintain health and thrive. Many natural foods contain the necessary additional substances, and these additional substances need only be present in most minute amount in order to make a diet which was formerly deficient quite ample for growth and health. The necessary additional substances are known by the name of "vitamines." The vitamine for preventing beri-beri, or polyneuritis, in animals is different from that which prevents scurvy.

The anti-beri-beri vitamine is a nitrogenous substance. It is not a protein. It does not contain phosphorus. It is soluble in water and alcohol, or dilute acids. It is destroyed on heating to 130° C., but not at a temperature of 100° C., nor by dilute acids, though sterilisation of foods undoubtedly destroys the vitamine. Tinned foods, owing to the heat employed in their sterilisation, are almost entirely deficient in anti-beri-beri vitamine. This vitamine is more stable than the anti-scurvy vitamine. Thus the latter is destroyed by heating to temperatures below 100° C.—e.g., about 70° C. Also the drying of fresh vegetables, or even the keeping of them for long periods, destroys the anti scorbutic vitamines.

Rice has long been associated with the causation of beri-beri, and modern research has completely cleared up the former obscurity as regards its relationship. The rice grain consists of a husk or pericarp, beneath which is a subpericarpial layer or aleurone layer, and the main central part of the grain or endosperm consists chiefly of starchy matter. The anti-beri-beri vitamine is present in the subpericarpial or aleurone layer. Machine-polished rice consists solely of the starchy endosperm, the pericarp and subpericarpial or aleurone layer being completely removed. This rice, which is the ordinary white rice of commerce, is devoid of anti-beri-beri vitamine, and birds fed on it rapidly develop polyneuritis, which will prove fatal. Human beings fed on this rice will develop beri-beri if it is the main article of diet, and if the other articles of diet are deficient in anti-beri-beri vitamines. Rice from which the husk is removed by steaming or treatment with hot water (parboiled rice) and subsequent rubbing in a mortar or by hand will not cause beri-beri. The reason is that some of the subpericarpial layer or aleurone layer is left adherent to the grain, and this contains the anti-beri-beri vitamine which is so essential to the dietary. Numbers of experiments on animals and observations on human beings who have contracted beri-beri from rice have completely proved the above view.

In animals in whom polyneuritis or beri-beri has been caused by feeding on polished rice the symptoms quickly clear up if for the polished rice the native unhusked rice—i.e., the rice from which the husk has been removed by previous treatment with steam or hot water—is substituted. Instead of this the addition to the polished rice of an extract of the rice polishings will have the same beneficial effect. The katjang idjoe bean also contains anti-beri-beri vitamine and its addition in amount of ½ lb. a day to a polished rice diet will prevent beri-beri in natives.

Yeast is a substance which is, perhaps, the richest in anti-beri-beri vitamine. Egg yolk, brain, liver, kidneys, sweetbread, oatmeal, haricot beans, peas, are all fairly rich in this vitamine. Milk and fresh meat contain only small amounts.

In the cases of beri-beri in this series the dietetic conditions were compatible with the development of beri-beri.

In the Dardanelles series the presence of a toxic factor such as jaundice, diarrhœa, or paratyphoid, necessitated a special diet, which, though suitable to the diseases in question, was almost devoid of anti-beri-beri vitamine, and so an additional dietetic factor was added to a borderland case, thus causing the development of beri-beri.

Other causes of beri-beri which have been stated by various authorities are the following:—1. Arsenical poisoning. 2. Copper poisoning. 3. Poisoning by potassium oxalate. 4. Food poisoning, e.g., raw fish containing parasites, decomposed fish, or decomposed rice. 5. Bacterial infections, e.g., a specific coccus, the kakke coccus, of Okata and Kokubo, two Japanese surgeons. Other organisms have also been described by different observers. 6. That it is due to animal parasites, e.g., ankylostomum duodenale or trichocephalus dispar. 7. That it is due to a fungus; e.g., Captain R. G. Archibald, R.A.M.C., in one case has isolated a spore-bearing fungus from the intestine, liver, and spleen. 8. That it is a disease of locality, the infection being spread from the soil. 9. That it is due to a deficiency of organic phosphorus in the dietary.

The subpericarpial or aleurone layer of rice is richer in organic phosphorus than the endosperm, and, as a consequence, it was found that rice poor in phosphorus was more likely to cause beri-beri. The investigations into the nature of the anti-

beri-beri vitamine by Funk and Cooper showed that it contained no phosphorus, and that the addition of organic phosphorus compounds did not *per se* have any curative or prophylactic effect in animals suffering from polyneuritis caused by a diet deficient in anti-beri-beri vitamines.

It cannot be said that any of the above have been definitely established as causes of the disease. Certain is it that the "deficiency" theory has been proved to be the most important factor. It is possible that infective causes such as microbic or fungoid may also play a part.

Predisposing causes are undoubtedly bad sanitary conditions, an insufficient and poor quality diet, and previous debilitating diseases, such as dysentery, jaundice, and others.

Geographical Distribution of Beri-beri.

Beri-beri is usually regarded as a tropical or subtropical disease, since it occurs in Japan, China, Malaya, the Philippines, India, &c. Outbreaks have, however, occurred in America, and in asylums in England and Ireland. It is undoubtedly rather the dietetic conditions associated with a particular place than the place itself which is the important factor.

Differential Diagnosis.

Scurvy.—This is often present in association with beri-beri, especially in cases such as those occurring on board ship or on campaign, where there is difficulty in the supply of fresh food. In the Dardanelles series of beri-beri cases three showed scorbutic symptoms, e.g., purpura, though they could not be said to have scurvy. In scurvy important diagnostic signs are the following: The purple swollen gums with tendency to bleed. Purpuric patches on the skin. Anæmia. Hæmorrhage into the hard palate. Tenderness and swelling of bones due to subperiosteal hæmorrhage. This condition is most often evident in the tibiæ, and then there is a good deal of firm œdema of the skin around the affected bone. Indeed, swelling of the legs may be very marked, but there is great local tenderness over the tibiæ and not in the calves. The above signs clearly distinguish scurvy from beri-beri. In scurvy also multiple neuritis is absent. The effect of treatment often serves to distinguish the two diseases. Thus, while scurvy rapidly clears up if special anti-scorbutic substances such as raw potato, lemons, fresh vegetables (uncooked) are given, beri-beri requires a special dietary of a different nature, as described below.

Multiple neuritis from other causes, such as alcohol, diphtheria, arsenical poisoning, &c., must be carefully distinguished from beri-beri. The history of the case and other evidences of the action of the toxic agent—e.g., cirrhosis of liver from alcohol, pigmentation and rashes, and presence of arsenic in the urine or hair in arsenical neuritis—will usually enable a differentiation from beri-beri possible.

Diseases of the spinal cord, such as tabes dorsalis, myelitis, scleroses of various kinds, may be mistaken for the neuritis of beri-beri. A careful examination for such symptoms as lack of bladder control, extensor plantar reflex, ankle clonus distinguishes myelitis and sclerotic conditions of the cord from beri-beri. In tabes the Argyll Robertson pupil, the marked ataxy, the absence of muscular wasting or tenderness of the calves are signs distinctive from beri-beri.

Dropsy from other causes, such as renal disease, where the presence of albumin and casts in the urine and absence of neuritis are points of distinction; cardiac disease, where the history of the case—e.g., previous rheumatism or syphilis, or other cause of valvular disease, the long duration of the cardiac symptoms without signs of multiple neuritis, and the physical signs of actual valvular disease make the distinction from beri-beri easy. Epidemic dropsy is characterised by pyrexia, anæmia, and absence of multiple neuritis, which serve to distinguish it from beri-beri.

Treatment.

Absolute rest in bed is essential in the early stages and in all cases showing cardiac symptoms.

Diet.—In an acute case, where gastric symptoms are marked, the diet will necessarily be light and mainly liquid.

Yeast should be given. Two ounces of dried yeast, such as is supplied on campaign under the name of "export yeast," should be administered daily. This is conveniently given by pouring on the yeast a little boiling milk, stirring up into a thin cream, and then adding more warm milk and sugar, so that a palatable food results. In place of export yeast cakes of dried yeast mixed with a little starch are often available. These are supplied under the name of "Royal yeast cakes," which are like small biscuits weighing about ½ oz. each. Six of these should be given daily. The following was found a convenient and palatable method of preparing the yeast cakes for consumption: One or two yeast cakes were placed in a basin, boiling milk was poured on them, and the cakes broken up and rubbed round with a spoon into a thin cream. Then warm milk and sugar were added, and the mixture was then ready for taking.

If neither of the above forms of yeast is available on campaign yeast can always be obtained from the army bakeries, where yeast brews are constantly kept going. The yeast obtained here will be mixed with the liquid of the brew. About half a pint of this should be taken daily. It may be sweetened with sugar and flavoured with lemon rind or essence of lemon. It is quite palatable.

Pea soup is a useful article of diet, the pea powder containing anti-beri-beri vitamines. Three or four raw eggs should be given daily, beaten up with milk, or taken in any other way.

The above dietary is rich in anti-beri-beri vitamines, but a valuable addition to it will be fresh lemon-juice—e.g., the juice of two or three lemons per day. This will contain anti-scorbutic vitamines, which are often needed by beri-beri cases, owing to the close association etiologically between beri-beri and scurvy.

When the patient can take solid food, in addition to the yeast, which is very essential throughout the disease, the following articles of diet may be given. They are arranged in order as regards their value from the quantity of essential vitamine present, those highest in the list being rich in vitamine.

Articles of Diet for Beri-beri Cases, Arranged in Order as Regards their Vitamine Value.

1. Yeast (already mentioned).
2. Eggs (either raw or lightly cooked).
3. Brain.
4. Liver.
5. Sweetbread.
6. Kidneys.
7. Heart muscle.
8. Peas.
9. Haricot beans.
10. Katjang idjoe beans.
11. Lentils.
12. Porridge.
13. Brown bread.
14. Milk (fresh if possible).
15. Fish or meat.
16. Ordinary bread or biscuits.

Lemon juice or lime juice should also be given.

Extracts of yeast are on the market. These taste exactly like extract of meat, and when mixed with warm water form a drink like ordinary meat extract or bovril. Yeast extracts may be given with advantage in beri-beri cases, both acute and chronic.

The relationship of rice to beri-beri has been fully dealt with, and rice is best avoided in the treatment of beri-beri cases.

Fresh vegetables, fruit, and, generally speaking, an ample dietary should be given in beri-beri cases where there is no gastric disturbance.

The symptoms of beri-beri call for special treatment. The cardiac symptoms will require treatment by means of cardiac tonics—e.g., digitalis, strychnine, strophanthus, &c. In severe cases strychnine and digitalin may be given hypodermically, and oxygen. Oxygen passed through absolute alcohol is valuable. The multiple neuritis calls for treatment on the usual lines. Light massage, electric treatment by the galvanic current, &c., are valuable.

Prophylaxis.

Diet is most important. On campaign it is often difficult to avoid some deficiency in those articles of diet which are especially rich in anti-beri-beri vitamines. Haricot beans, pea powder given in pea-soup, and porridge are valuable and convenient articles of an army dietary in the field. Fresh vegetables are also important.

If beri-beri is prevalent undoubtedly some preparation of yeast should form a constituent of the dietary of men exposed to danger from this disease. Dried yeast or yeast cakes may be given, or else the yeast extract taken with hot water should be issued.

It is very important that beri-beri cases should be recognised as early as possible, and this can immediately be done by the application of the "squatting test" described above. Cases showing the early symptoms should at once be put upon special treatment, since in the early stages the disease is easily and quickly cured.

General sanitary measures and attention to personal hygiene are of importance in the prevention of beri-beri.

My especial thanks are due to Major C. J. Martin, R.A.M.C., of No. 3 Australian General Hospital, for valuable help and advice given in connexion with the beri-beri cases. Much of the recent original work on beri-beri was done under Major Martin's supervision at the Lister Institute, London, and the details given in this paper as regards diet are largely due to the valuable advice given by him. I am also indebted to Lieutenant-Colonel Stawell, R.A.M.C., and Lieutenant-Colonel de Crespigny, R.A.M.C., of No. 3 Australian General Hospital, for their valuable coöperation and help in the clinical investigation of the cases. My thanks are due to Colonel F. J. Brown, A.M.S., senior medical officer, of H.M.H.S. *Mauretania*, who very kindly placed at my disposal the cases of beri-beri on his ship.

COUNTY OF CORNWALL ROYAL NAVAL AUXILIARY HOSPITAL.—The Truro workhouse, which has been equipped as the Cornwall Royal Naval Auxiliary Hospital, was recently inspected by Surgeon-General Sir James Porter, K.C.B., K.C.M.G., R.N., and the Lords Commissioners of the Admiralty have expressed their appreciation of the excellent manner in which the institution has been fitted up. The hospital contains 150 beds, and £2524 were received in subscriptions towards the equipment, the cost of which was £2651.

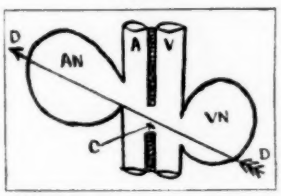
AN UNUSUAL FORM OF GUNSHOT ARTERIO-VENOUS ANEURYSM

IN WHICH THE SAC WAS SITUATED ON THE SIDE OPPOSITE TO THE VEIN.

BY CHARLES A. MORTON, F.R.C.S. ENG.,
PROFESSOR OF SURGERY, UNIVERSITY OF BRISTOL; SENIOR SURGEON, GENERAL HOSPITAL AND CHILDREN'S HOSPITAL, BRISTOL; CONSULTING SURGEON, CSSHAM MEMORIAL HOSPITAL; MAJOR, R.A.M.C. (T.).

IN the ordinary form of arterio-venous aneurysm the aneurysmal sac lies between the artery and vein, and the communication between the artery and vein is through the sac. In the case which I now record there was a communication between the artery and vein, due to the passage of a portion of a projectile through them, and on the side of the artery opposite to the communication, where the portion of projectile had passed out of the artery, was an aneurysmal sac. Where the portion of projectile had penetrated the vein—i.e., on the side of the vein farthest from the artery—was what we may, I think, call a venous aneurysm—i.e., a cavity in the tissues containing old blood-clot, communicating with the vein. The condition may be represented by this diagram. (Fig. 1.) I think

FIG. 1.



Schematic section of arterio-venous aneurysm. A, artery. V, vein. AN, arterial aneurysm. VN, venous aneurysm. C, communication between artery and vein. DD, direction taken by the projectile in its passage.

it is more accurately described as an aneurysmal varix with, in addition, an arterial aneurysm and a venous aneurysm. It will be seen from Fig. 3 that the opening from the artery into the aneurysm was higher in the artery in relation to the opening from the vein into the artery than I have represented in the diagram. The piece of metal evidently passed through the vein and artery from below upwards.

I have studied the records of the 50 cases of gunshot aneurysm recorded in the October number of the *British Journal of Surgery*, and I find there is one case of arterio-venous aneurysm in which the aneurysmal sac was not situated between the artery and vein, nor did the vein directly communicate with it, but, as in my own case, there was a communication between the artery and vein close to it. This communication was between the axillary artery and vein, and the aneurysmal sac was situated at the junction of the axillary artery and the subscapular artery. As in my case, probably the rifle-bullet first penetrated the vein, then the artery lying under it, and finally caused the aneurysm where it emerged from the artery. The case is No. 2 from the 2nd Northern General Hospital (Leeds) and was under the care of Captain Richardson, R.A.M.C. (T.). A similar condition was almost certainly present in Case 1 from the 1st Scottish Hospital under the care of Lieutenant-Colonel A. Marnoch, R.A.M.C. (T.). A traumatic aneurysm was found at operation on the femoral artery in Hunter's canal. No communication between the artery and vein was then

discovered, but it must, as Lieutenant-Colonel Marnoch says, have existed, for after the operation there was persistence of a thrill. Possibly in another case of arterio-venous aneurysm the aneurysmal sac on the vessel was not the medium of communication between the artery and vein. This is Case 4 from the 1st Scottish Hospital, under the care of Captain A. P. Low, R.A.M.C. (T.). In the picture of the specimen removed post mortem, the aneurysmal sac does not appear to lie between the artery and vein. All that is said, however, in the description of the specimen is: "In addition to an aneurysmal sac, there was a communication between the artery and the vein." In Case 2 from the 3rd Western General Hospital (Cardiff), under the care of Major Cornelius Griffiths, R.A.M.C. (T.), it is interesting to note that there were two small aneurysms, one on each side of the artery, but as there was no communication with the vein it is unlike my own case.

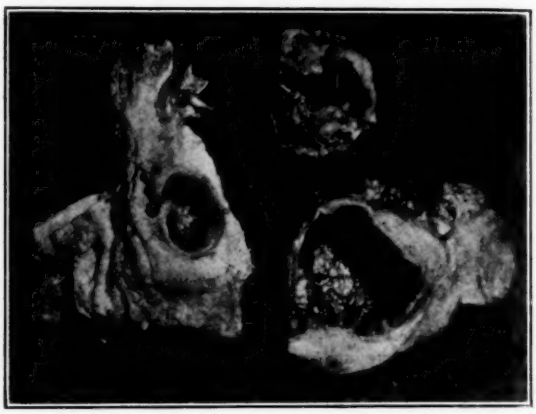
In two cases what I have described in my own case as a venous aneurysm was present, and in both cases combined with aneurysmal varix. Thus, in Case 5 from the 2nd Northern Hospital, under the care of Captain S. W. Daw, R.A.M.C. (T.), there was an aneurysmal varix of the popliteal artery, and on the opposite side of the vein "a false sac" was present, which was considered to indicate (as in my own case) that "the vein had been pierced from side to side." It is stated that the "vein was detached from the false sac which was left alone." In Case 8 from the 2nd Western General Hospital, under the care of Major A. H. Burgess, R.A.M.C. (T.), there was also what I have called a venous aneurysm, and Major Burgess also calls it an aneurysm. There was a communication between the popliteal artery and vein, but the sac did not communicate directly with the artery, but was superficial to the vein—i.e., on the opposite side to the artery, and the vein opened into it. The injury was due to a rifle-bullet, which perforated first the vein and then the artery, so that (as in my own case) the venous aneurysm was produced at the place where the vein was penetrated before the bullet reached the artery. It was a cavity "the size of a hen's egg, containing old dark blood clot and some liquid blood."

My own case and the records of these other cases seem to me to indicate that we do not realise that cavities communicating with wounded veins may be formed by penetrating wounds of veins where a communication also exists between the vein and the artery. In my own case the cavity was very small and was deeply buried under the muscles of the thigh. Whether it would have had any thrill separate from that of the arterio-venous communication or pulsation if it had been more superficial I cannot say. But in Major Burgess's case is found a "soft compressible" swelling "with obvious pulsation." In his case the thrill and bruit were probably due to the arterio-venous communication which lay beneath the aneurysm.

The patient, aged 24, was admitted to the Military Ward at the Bristol General Hospital on Oct. 23rd, 1915. He had been wounded by a bomb on Oct. 17th. On admission he was found to be suffering from two small wounds in the right lower limb, one well on the outer side of the upper part of the thigh and the other just below the anterior superior spine. A skiagraphic examination failed to show any portion of the projectile in the limb. He also had a wound on the other leg. Not until 18 days after the injury was anything abnormal noticed on the inside of the thigh. The patient noticed a "beating" swelling there at the end of the first week in November, together with a pain on the inside of the knee when he pressed on the swelling.

On Nov. 10th I found that there was a firm swelling with distensile pulsation, the size and shape of the end of a finger, in the line of the femoral artery, 5½ inches below Poupart's ligament and 10½ inches from the adductor tubercle. It was well defined on its lateral aspects, but merged into the surrounding parts above and below. It disappeared on pressure on the artery above. There was an extremely marked thrill, and this was confined to the neighbourhood of the swelling. There was also a loud bruit, which was conducted up and down the vessel. They were not quite continuous, but almost so—i.e., the intervals were only just appreciable. There was no venous obstruction in the limb. Venous obstruction, as pointed out by Mr. G. A. Wright,[1] may not appear for several months after an arterio-venous communication first forms. Both the posterior tibial at the side of the ankle and the dorsalis pedis could be felt. There was no sign of any ecchymosis in the region of the swelling. A skiagraphic examination of the region of the swelling shows a minute portion of metal close to it. As there were two wounds in the thigh it seemed almost certain that the portion of projectile had entered through one of them, but this was not so.

FIG. 2.



The specimen on the left is the exterior of the artery with the base of the aneurysmal sac on it, and the slit-like opening out of the artery into the sac. The attached vein is seen on the left of the specimen with its walls folded together. The lower specimen on the right is the dome of the aneurysmal sac, which broke away from the base shown in the other specimen, and the upper specimen on the right is the clot it contained. (Natural size.)

The extremely marked thrill and bruit suggested arterio-venous communication, and the presence of a very definite firm swelling seemed to indicate that it was an arterio-venous aneurysm, and therefore that operation was necessary. I hoped to be able to deal with the openings in the vessels by Matas's method of suture, with excision of the sac.

Operation.—On Nov. 16th I exposed the femoral artery and vein and the aneurysm by an incision in the line of the vessels. The position of the aneurysm was just about the beginning of Hunter's canal. I first clamped the femoral artery above the aneurysm with Crile's clamp, and then separated the sartorius off the aneurysm and found it thinned and partly incorporated with it. The fragment of metal shown in the photograph (Fig. 3) was found immediately under the muscle—i.e., in the superficial aspect of the aneurysmal sac. The wall of the sac (which is shown in the figure) was very thin and lacerated, and was partly formed by the sartorius muscle. It contained partly decolourised firm clot, some of which was adherent to the wall. The greater part of it was easily wiped off the artery with a swab, and exposed a firmer base (seen in Fig. 2), in which was a slit-like opening out of the artery (also shown in Fig. 2).

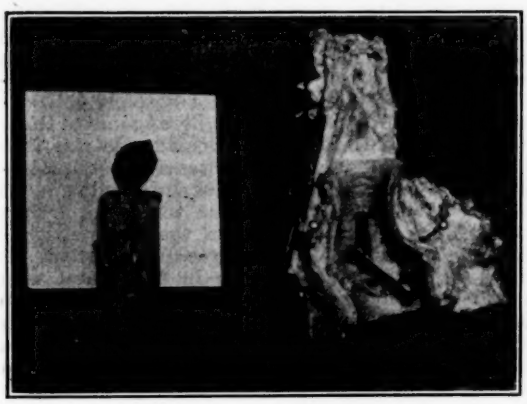
The artery and vein below the aneurysm were then exposed. In separating the vein from the wall of Hunter's canal I got very free bleeding. I could not understand why this occurred. It was controlled by digital pressure on the

[1] THE LANCET, Dec. 11th, 1915, p. 1289.

bleeding area in the vein, and I then separated and tied the vein below it. But this did not stop the bleeding, and I had to get my assistant to keep up digital pressure on the bleeding area in the vein over some gauze while I proceeded with the operation. I then detached some clot lying in the orifice from the artery into the aneurysmal sac, and smart bleeding occurred from the artery. I tried to stop this by applying another Crile's clamp to the artery below the aneurysm, but it was ineffectual. But I found that if I grasped both artery and underlying vein together below the aneurysm with my thumb and finger this stopped the hæmorrhage. So I put a pair of pressure forceps on both vessels lying together at this spot and controlled the bleeding in this way. The blood was evidently coming from the proximal end of the vein through the artery, but the proximal part of the vein was deeply bound under the artery and aneurysm and I could not reach it to ligate it, so that the only thing to be done was to clamp where I found that pressure was effectual in controlling the bleeding. It did so at this level because it cut off the communication between the vein and the artery. This was not evident at the time, because I did not know exactly the position of the communication, but I was very glad to be able to control the free bleeding by the application of the pressure forceps.

It was now evident that I could not do Matas's operation, and I decided to excise the portion of the artery and vein involved in the morbid condition. I divided the artery below the aneurysm, and the vein had already been divided there. I then picked up the two vessels, which were united together until I could get at the proximal end of the vein beneath the artery above the aneurysm and ligate it as well as the proximal end of the artery. After this portion of the vessel had been excised and all bleeding had ceased the existence of a small cavity in the inner wall of Hunter's

FIG. 3.



On the left, stuck into a piece of cork, is the portion of projectile which penetrated the artery and vein. Its edges are as sharp as a knife. It measures ½ cm. in one diameter and a little more in another. The specimen on the right is the interior of the artery, showing the slit-like opening into the aneurysmal sac. A glass rod has been passed through the communication between the artery and vein. The vein does not show in the figure; it lies behind the artery. Where the communication between the artery and vein is seen the arterial wall looks much smoother than the other part of the interior of the artery. This is because this is the portion of the artery clamped in the forceps, and the inner coats have therefore separated and retracted. There is only one inch of artery represented in the figure. The tissue at the upper end of the specimen is only connective tissue on which the artery lies. (Natural size.)

canal was discovered. It just admitted the finger-tip and contained a little old clot. It was either between the fascia and the adductor muscle or in the muscle, and had a rough wall. It was situated just where the troublesome bleeding had occurred on separating the femoral vein from the wall of Hunter's canal below the aneurysm.

I did not understand the significance of it at the time of the operation, but on further consideration it was evident that it had communicated with the vein, and that the opening into the vein had been torn in separating the vein from the wall of Hunter's canal. It was also evident that the minute portion of metal, which was as sharp as a knife-edge, had penetrated the back of the thigh in the adductor region, had then passed upwards and forwards through the femoral vein, then through the artery. It was found just superficial to the artery. The cavity in or under the adductor muscle, which I have called a venous aneurysm, was probably due to escape of blood out of the vein at the part where it was first penetrated. This was almost certainly due to the force of the blood current forced from the artery into the vein. This cavity was exactly analogous to the aneurysmal sac in the case of Major Burgess, to which I have already referred. Only in my case there was in addition to what I have called a venous aneurysm, an ordinary traumatic arterial aneurysm on the other (the superficial) side of the artery. There seems to be no evidence that a puncture of a vein will cause the formation of the condition of what I have called venous aneurysm, without also a communication with the artery. The force of the circulation within the vein is not sufficient to produce it. Such a condition has been described as a form of varicose aneurysm—i.e., when the sac only communicates with the artery through the vein. For purposes of distinction it seems to be better to recognise the condition as one of aneurysmal varix, combined with venous aneurysm.

The collateral circulation was quite efficient and the healing of the wound was satisfactory, and the patient on Dec. 23rd was able to get about with crutches. He has not yet regained full power in the limb (Feb. 20th, 1916).

It is interesting to note that in this case there was nothing to make either the patient or any surgeon who examined him suspect injury to the large vessels of the thigh until 18 days after injury. The wounds which were recognised were far away from the large vessels, and there was no evidence of any track crossing the limb near them. The minute puncture made by the entrance of the portion of projectile which injured the vessels on the back of the thigh could not have been much larger than a tenotomy cut and was never recognised. I have looked through the 50 cases of traumatic aneurysm to which I have already referred to see if the injury to the vessel had been unrecognised for any length of time in any of these cases.

In Case 6 from the 1st Scottish Hospital, under the care of Captain F. K. Smith, R.A.M.C (T.), the soldier was wounded in the arm by a rifle bullet which traversed the arm from side to side a few inches above the condyles and had caused serious bleeding at the time of the injury. But when admitted to the base hospital 16 days later, with the exception of the wounds, which were quite dry, and some ecchymosis, nothing abnormal was discovered, and yet eight days later symptoms and signs of aneurysm developed and at operation a large gap was found in an artery, so that probably some extravasation remained from the time of the injury, but had become circumscribed and then later on, on August 8th, diffused. In this case the knowledge that severe hæmorrhage had occurred at the time of injury led to a special examination in the region of the vessels and no signs of traumatic aneurysm were discovered 16 days after injury.

In Case 1 from the 3rd Western General Hospital, under the care of Major Cornelius Griffiths, when the patient was admitted to the base hospital with a healed bayonet wound of the axilla, there seem to have been no signs of aneurysm. It is not stated how long before admission the bayonet wound was received. It is stated that "a fullness gradually appeared in the pectoral region, but no pulsation was apparent for a fortnight after admission" and yet a hole the size of a pea was present in the third part of the subclavian artery.

In Case 1 from the 1st Northern General Hospital, under the care of Major Grey Turner, there was a considerable interval after the passage of the bullet across the neck before there were signs of the arterio-venous aneurysm which developed. The wounds had healed, and he had been discharged from some hospital as cured before he noticed a small slightly pulsating swelling in the neck. It must have been a fortnight from the injury, but the exact data are not given.

In Case 3 from the same hospital, and also under the care of Major Grey Turner, what were supposed to be "only trivial injuries" in the region of the knee had healed, and the patient was sent to a convalescent home a month after injury by "shrapnel." He complained of a little pain behind the knee, but it is stated that there was no swelling "and it did not seem to require attention." Yet 13 days later a large aneurysm had formed, and an oval aperture about ⅜ inch long and ¼ inch across existed in the popliteal artery. This case is particularly instructive, as it is fairly easy to detect a swelling in the popliteal space, and yet there was no sign of aneurysm one month after injury, although the region was specially examined.

In Case 4 from the same hospital, and also under the care of Major Grey Turner, an aneurysmal varix of both the posterior tibial artery and the peroneal artery did not give indication of its presence until more than three months after the injury, and after the soldier had been getting about "without any inconvenience from the leg." As there were scars indicating the passage of a bullet through the calf the limb was auscultated and a bruit discovered.

In Case 5 from the 1st Scottish Hospital, under the care of Captain H. E. Smith, an aneurysmal varix of the femoral artery in Scarpa's triangle was only discovered accidentally by a medical officer who was applying a fomentation to a boil on the thigh. He felt the thrill. This was more than two months after a bullet wound of the thigh had been received.

In Case 4 from the 1st London General Hospital, under the care of Major Cozens Bailey, R.A.M.C.(T.), the soldier was struck on the calf by a shrapnel bullet, but it was not thought to have penetrated, and the soldier was sent to the base hospital for frequency of micturition, with the supposed "graze" on the calf healed. Eighteen days after the injury the patient felt a swelling on the inner side of the knee, and a few days later pulsation in the popliteal space was discovered, and an aneurysm of the popliteal artery was found at operation.

In Case 7 from the 2nd Western Hospital (Manchester), under the care of Major Burgess, a soldier was admitted whose lower limb had been penetrated by a piece of shell passing in through the popliteal space, but it was not until three weeks later that a swelling then due to aneurysmal varix was discovered.

It is evident from the records of these cases (including my own) that there may be what we may call a latent period of some few weeks after the infliction of the injury before signs or symptoms of either traumatic aneurysm or aneurysmal varix appear. Yet the findings at operation show that in such cases considerable wounds may be present in the vessels. Why does not the aneurysm or the aneurysmal varix develop sooner in these cases? It seems probable that in cases of aneurysmal varix it does develop at once, but as the condition may be present without any symptoms, and may be only noticed accidentally, as in Case 5 from the 1st Scottish Hospital, it is only later discovered. But in some of the cases of aneurysm there was no swelling when the injured region was examined some weeks after the injury, and therefore there could not have been an aneurysm of any size then present. This was so in both Case 3 from the 1st Northern General Hospital and Case 6 from the 1st Scottish General Hospital; and as in one case the aneurysm later developed in the popliteal space, and in the other in the lower end of the upper arm, it would have been easy to discover them at an early stage if they had then been of any size. May it therefore be possible that in some cases the hæmorrhage may be so slight as not to cause a definite swelling, even amongst tissues where it is accessible to observation—i.e., not buried deeply under large muscles? It is possible that the outflow of blood from the artery may be, at any rate for a time, limited very greatly by resistance of the surrounding tissues, and a very small circumscribed aneurysm formed. But if it is thus limited at first, so that the aneurysm does not enlarge even enough to be detected, why does it enlarge rapidly later on, unless it changes from the circumscribed form to a diffuse one? That it has not always become diffused, when it is detected after a latent period, is shown by the records of two cases in the *British Journal of Surgery*, for in these cases it is stated that there was a sac. And when in these cases of aneurysm developing after a latent period operation has been performed, quite a large opening has sometimes been found in a large artery, so that the marvellous thing is that an aneurysm of considerable size did not form immediately after the injury.

Is it possible to account for the latent period by supposing that for a time the lumen of the artery is blocked by clot, and that later this clot becomes detached, or, in septic conditions, disintegrated? It would be interesting to know if in these cases, during the latent period, the pulse is obliterated in the artery beyond, for if it were that would support such a view.

The possibility that clot may form in the aperture in the vessel wall, and stop the bleeding, and yet the lumen of the vessel may not be occluded by clot, and that this clot in the aperture may later be detached and disintegrated, must be considered as a possible explanation of the latent period. If the wound in the artery were minute one could understand its being sealed with clot without obliteration of the lumen of the vessel, but in some of these cases it has been of such considerable size that this is very unlikely to have occurred; and, moreover, if it is once sealed by clot the opening ought to be healed a few weeks later, whereas it is then found open, and the source of the hæmorrhage—i.e., at the time the aneurysm is first detected. It seems impossible that a scar in the vessel wall could give way and cause an aneurysm, when no aneurysm was formed all the time the wound in the artery was in process of healing, or that a small scar in the vessel wall could dilate into an aneurysmal sac.[2]

[2] Since this paper was written Sir George Makins's paper on "The Vascular Lesions produced by Gunshot Injuries, and their Results" has been published in the January number of the British Journal of Surgery (p. 365), and he there makes some interesting suggestions as to the cause of the delay in the formation of traumatic aneurysm.

Clifton, Bristol.

ROYAL PORTSMOUTH HOSPITAL.—The annual meeting of this institution was held on Feb. 25th, when the report for 1915 was submitted. It appears from the report that this hospital is in a better financial position than for many years past. The ordinary income had been a record, amounting to £11,166, as compared with £7192 in the previous year. The chief factor in this large increase was the payment for 739 military patients treated during the year. The expenditure, which amounted to £11,504, was also a record, due partly to the admission of military patients and partly to the abnormal rise in price of provisions and stores of all kinds. Legacies amounting to £1249 had been received, so that the year ended with a balance to the good of £911. The average cost per bed occupied was £65 5*s.* 6*d.*, as compared with £61 17*s.* 10*d.* in 1914, and the average cost of each in-patient was £3 16*s.* 6*d.*, as compared with £3 12*s.* 1*d.* in 1914. Seven members of the honorary staff have been absent on military service.

DIET AS A FACTOR IN THE CAUSATION OF MENTAL DISEASE.

BY CHAS. MERCIER, M.D. LOND., F.R.C.P. LOND.,
LATE PHYSICIAN FOR MENTAL DISEASES TO CHARING CROSS HOSPITAL.

(*Concluded from p. 513.*)

"Forty years long was I grieved with this generation and said: it is a people that do err in their hearts, for they have not known my ways."

IT is just 40 years since I first ventured to call in question the accepted doctrines of the causation of nervous diseases. In an article in the *British and Foreign Medical and Chirurgical Review*, an excellent quarterly now long defunct, I likened the imagination of physicians in this respect to the imagination of that fortunate sailor to whom was granted (nowadays we should say who was given) the fairy privilege of having three wishes fulfilled. After he had secured all the rum in the world and all the tobacco in the world by his first two wishes, he could think of nothing further to desire than "a little more rum." So physicians, after they had attributed every known nervous disease to sexual excess and syphilis, had no explanation of a new disease to offer beyond a little more sexual excess. The only nervous diseases that were not then attributed partly or wholly to syphilis were tabes and general paralysis. Some five-and-twenty years ago, when an eminent physician was about to lecture upon the causes of insanity, I hazarded the conjecture that we should hear a good deal about masturbation, and I had no reason to repent of my prophecy. We may be pardoned a little natural exultation when we contrast the present state of etiological doctrine with that which prevailed in those dark ages. We had then no more reason for our belief than Aristotle had for the belief that all heavy bodies tend to the centre of the universe, but now we know that the mental diseases that we used fondly to ascribe to sexual excess and syphilis are, in fact, due to repressed complexes and infantile incestuous longings. How foolish were our predecessors! How enlightened are we! Great is Freud, and Dr. Forsyth and Dr. Stoddart are his prophets. Behold! how good and joyful a thing it is that we should be taught to sing our *Venite exultemus*, and say, O come let us worship, and fall down: and kneel before the Fraud our faker.

Without impugning in the least the startling discoveries that we owe to the cleanly imagination of Freud, I think it possible that they may be supplemented by researches less recondite. When I study his efforts to discover the causes of mental disease, I am irresistibly reminded of the story of the Purloined Letter. The detectives knew that it must be in the room, so they groped up the chimney, pulled up the floor, sounded the walls, probed the furniture, and ripped up the cushions, without finding the letter, which was lying displayed prominently under their noses all the time. It has occurred to me that our difficulty in discovering the causes of mental disease may possibly be of the same kind. We may perhaps be looking in the wrong places, and instead of searching for them in the privy and groping in the night-stool, on the system of Freud, we may possibly find them on the dinner-table, and in the sugar-basin and the butter-dish. At any rate, we can pursue this method of investigation without filing our minds; and even if we are unsuccessful, we can leave off with clean hands.

To this line of investigation I was directed by several considerations. First, it is beyond question that certain things, when taken into the stomach, are capable of producing mental disease. Alcohol is an example. Second, the defect of certain constituents of the blood does produce mental disease. Cretinism and myxœdema are examples. Third, whatever the immediate source of these constituents, their ultimate source is in the food. If the ingredients of the products of the ductless glands are not in the blood, those products will not be produced; and if the ingredients are not in the food, they must be absent from the blood also. Moreover, fourth, it may be that there are certain ingredients in the blood, and therefore in the food, that are necessary to mental health, even without elaboration and transformation in the ductless glands; for investigation has now discovered the existence and the astonishing properties of vitamines. Whatever the nature and whatever the mode of action of these puzzling substances, it is beyond question that their absence from the food does profoundly affect not only the physical health, but the mental health also. Hence I conjectured that it was possible investigation might discover, in the antecedents of some cases of mental disease, some error in diet that might have a causal connexion with the disease.

At this point a great difficulty presented itself. Granted that one or more errors or peculiarities in diet were found among the antecedents of mental disease, how would it be possible to assure oneself that such errors or peculiarities were actual causes, and not mere casual associates or antecedents of the disease? To ascertain this I naturally turned to the writings of logicians, all of whom, and they are many, discuss this matter in their chapters on Induction; but alas! I found that upon this topic the logicians are as inept and as manifestly erroneous as they are on every other topic that they discuss. Not one of them affords any trustworthy criterion or test by which a cause may be distinguished from a mere antecedent or associate, and on this matter their writings are as confused and self-contradictory as they are on every other. It became necessary, therefore, to examine afresh the whole subject, not only of the nature of causation, but also of the methods by which causation can be ascertained; and the results of this examination are embodied in a book which is now in the press. From this I may extract for the present purpose the following principles, which are all that have a direct bearing on the subject now under discussion:—

First, that a cause is, strictly speaking, an action, more loosely speaking, an agent exerting an action, on the thing in which the change that we call the effect is produced. That thing in the present case is the patient.

Second, that before we can call an action upon a thing the cause of any subsequent change in that thing, we must prove a connexion between the action and the change.

Third, that this connexion may be proved in at least a dozen different ways, the only ways applicable to the case under consideration being those included in the Method of Association. When an action upon a thing is associated with a subsequent change in that thing we must not infer that the action is the cause of the change unless—

(*a*) We can isolate the action—that is to say, unless we can be sure that it is the only action upon

the thing at the time that could have produced the change; or

(*b*) The association is constant—that is to say, the effect always follows the action, and is never present unless the action has taken place; or

(*c*) If, though neither isolable nor constant, the effect is associated with the action more often than casual concurrence will account for; or

(*d*) If, though the association is neither isolable nor constant, yet when the effect is associated with the action, there is a constant peculiarity in the effect.

By applying these principles we can ascertain whether a disease that is associated with what we may conjecture to be a cause, is or is not due to that cause. Such testing of conjectural causes has never yet been performed, except in the case of infectious diseases. With the discovery of parasitic micro-organisms the causes of a large class of diseases have been ascertained, but our speculations as to the causes of non-microbic diseases are much the same as they were 40 years ago. With respect to these diseases the custom is to hazard a conjecture, and to speak of the conjectural cause as if it were an ascertained cause; and with respect to mental disease our attribution of cause is chiefly determined by fashion. At one time, as I have said, the only causes attributed were sexual excess and syphilis. These were followed by heredity; heredity was followed by toxins; toxins were followed by repressed complexes. In vain have I called on their supporters for evidence of the truth of these doctrines. Truth, as Dr. Johnson said, is a cow that will yield them no milk, so they are gone to milk the bull. The utmost and the only result of my endeavours has been that the Medico-Psychological Association has altered the title of its Table of Causes, and now calls it a Table of Etiological Factors. I do not think the change was made merely for the sake of euphony. It was made, I believe, with the intention of eluding my criticisms. Alienists have the most profound and complete conviction that they can alter the nature of things by altering their names, and that when a new name is given to a thing a new thing has been discovered. Thus, when that which has been known for many years as primary dementia is called dementia præcox, they are lost in admiration at the brilliancy of the new discovery, and can scarcely find terms strong enough to express their admiration of the discoverer. They seek to abolish the terrors of madness by calling it lunacy; they seek to abolish the terrors of lunacy by calling it insanity; they seek to abolish the terrors of insanity by calling it unsoundness of mind, which it isn't, or mental breakdown, or neurasthenia. I look forward hopefully to the time when they will call it Mesopotamia. They seek to abolish the terrors of mad-houses by calling them asylums; they seek to abolish the terrors of asylums by calling them retreats; they seek to abolish the terrors of retreats by calling them sanatoria, or mental hospitals. The last title carries a subtle suggestion of self-complacency, for how great must be that mind which can contain an entire hospital! I suggest, with some diffidence, that it would be still more impressive to call the hospital after a part or faculty only of the mind. We might call it, for instance, an imaginary hospital. Following the same easy and efficacious method, alienists propose, when I show that what they call causes are not causes, to nullify my criticism by altering the name and calling them etiological factors. One of my ways is to call a spade a spade, but alienists prefer to call it an agricultural implement. It is indeed a people that do err in their hearts, for they have not known my ways.

So far I can follow Moses, but when he loses his temper and proceeds to swear at his recalcitrant people, I must renounce his leadership. Falstaff declared that he was as poor as Job, but not so patient. I, on the other hand, may justly claim to be more patient than Job, though perhaps not quite so poor. His period of affliction was but brief. His friends sat by him in silence for a week, and the whole of the subsequent discussion on Moral Conduct as a cause—I beg pardon, an Etiological Factor—in Good Fortune could scarcely have lasted for more than another week, after which his trial came to an end; but I have suffered my fellow alienists, as gladly as I possibly could, for 40 years, and for the whole of that time they have erred in their hearts and have not known my ways.

Moreover, though Job was less irritable than Moses, and did not go as far as actually to swear in his wrath at those who were so wrong-headed as to take the other side in the discussion, and to refuse to adopt his views, yet it must be confessed that his patience and forbearance have been a good deal exaggerated, and fell far short of the meekness of Patient Grizzel or the Nut Brown Maid. More than once he was within an ace of losing his temper. "No doubt," said he, "but ye are the people, and wisdom will die with you. But I have understanding as well as you," and so on. No one can accuse me of such petulance, even towards psycho-analists. If they were to bring forward an argument, or anything that could be passed off as an argument, or even anything that colourably resembled an argument, in favour of their crazy system, I should examine it, I trust, with patience, and with what gravity I could muster; but though it is my way, it is not their way to give a reason for the faith that is in them. It is a people that do err in their hearts, for they have not known my ways.

I know it is hopeless to expect my colleagues who practise in mental diseases, and whose spiritual home is in Germany, to pay any attention to anything I may say, or indeed to any doctrine that is not made in Germany; but it is not for them that I have recorded in the last number of THE LANCET the cases that I will now proceed to examine. These are of general interest, and are such as are likely to come in his daily work before the general practitioner; and he, at anyrate, can appreciate their significance.

Here are recorded a number of cases of persons who have sought relief from mental disease; and the first comment that they call for, that they cry aloud and clamour for, is that, of 35 cases of mental disease, only one could be certified as insane. I insist upon this with special emphasis because of the universally accepted doctrine that disorder of mind is equivalent to insanity—that disorder of mind and insanity are the same thing. The contention that I have urged for so many years, that unsoundness or disorder of mind is not necessarily madness, has always been received by the people that do err in their hearts with contemptuous incredulity and open derision. Now, whatever my faults, and whatever my fads, I think even this people will admit that a patient must be undeniably sane if I cannot certify that he is insane; and of these 35 patients I could not have certified more than one; that is to say, 3 per cent. Of course, I do not expect this to make any impression upon my alienist friends, but I beg

the rest of the profession to note this indefeasible demonstration that mental disease, mental disorder, or unsoundness of mind, is not the same thing as madness, but that many and varied mental disorders are compatible with complete sanity.

The peculiarities in diet which preceded and accompanied the mental disorder in these patients were mainly of two kinds—deficiency of meat, or excess of fat, starch, or sugar. According to current practice, the peculiarity of diet would be regarded as unquestionably the cause of the mental disorder; but so to regard it would be quite unjustifiable unless the association of the peculiar diet with the mental disorder satisfies one or more of the conditions stated above; and the reason is clear. Vegetarianism is common enough: mental disorder is common enough. On the doctrine of Probability it is certain that the two must coincide in the same person in a certain number of cases—in a number that cannot be exactly ascertained for want of exact figures. There is, besides, another source of possible error. It is quite rare for vegetarianism to be the only fad of the vegetarian. Almost always he has a stock of fads. He cultivates a number of what may be called anti-isms. He is anti-alcoholist, anti-vivisectionist, anti-vaccinationist, anti-capitalist, anti-bellumist, anti-patriotist. He is anti-penalist, and would provide all gaols with pianos and newspapers, beer and skittles. He is anti-restraintist, and would abolish all lunatic asylums, rightly from his own point of view, for so he would escape the risk of losing his own liberty. It is, no doubt, possible to hold some of these opinions with reasoned conviction, and after examination of the evidence; but it is not so that the faddist holds them. He holds them as mere prejudices. He attaches to them a very disproportionate importance. He advocates them in season and out of season, and with intemperate zeal. He erects them into a religion, of which he is a fervent missionary, and of which he is proud to be a martyr in any small way which does not interfere too much with his comfort, or if it does, brings him a consoling notoriety. He regards any means of proselytising as justifiable, and lies conscientiously in furtherance of his fads. A mind of this nature is unbalanced. It is not insane, but it occurs in people who have insane relatives, and who are apt themselves to become insane. We should expect, therefore, to find among vegetarians an undue proportion of insane persons. For this reason I have omitted from the cases adduced every case in which abstention from meat was a fad, and have included those only in which meat was eschewed either because it was distasteful or because it was not procurable.

That very definite peculiarities in diet did precede and accompany the mental disease in the cases I have recorded is unquestionable. What is now to be determined is whether this antecedent and accompaniment can rightly be considered a cause. To this end we must make four enquiries:—

First, is the action that we conjecture to be the cause, that is, the action of the diet upon the patient, isolable? In other words, can we separate it from other actions on the patient so as to ascertain beyond doubt that the change in the thing acted on is due to that action, and to that alone? At first sight it seems that we cannot, for we know very little of what other actions tending to produce mental disorder may or may not have been incident upon the patient at the time. In some of the cases—viz., Cases 10 and 13—the patient was alone from morning till night six days in the week, which we may conjecture was inimical to mental health; in other cases there had been worry, anxiety, and other stresses. While, however, we can never completely isolate the action, we can produce an approximate isolation by withdrawing the action that we surmise is the cause, and noting any difference in the effect during its absence, and, it may be, allowing it to act again and noting the effect of the addition. In several of the cases the rectification of the diet was followed by improvement of the mental health, and in some cases this improvement was rapid or immediate, and was great. In this respect Case 5 is extremely instructive. This patient improved very decidedly within a week of the rectification of her diet. She continued to improve, until at length she spoke of her recovery as a miracle. Then she had a relapse. The relapse was not coincident with a return to the faulty diet, but it was coincident with what, for the purpose in hand, amounted to much the same thing—that is to say, with her pregnancy. She now took, it is true, enough proteid to nourish her own tissues, but it was not allowed to nourish her own tissues. It was seized upon at once by the growing fœtus, whose demands were paramount, and she was deprived of it. Nor did she improve when the child was born, but then, when the child was born, it was still her own food that nourished it. When, however, she weaned the child she rapidly recovered. It is difficult to avoid the conclusion that in this case the mental disease was dependent on the deficiency in the ration of protein, whose fluctuations it followed so closely.

It is one of the disadvantages of consulting and hospital practice that a large proportion of the patients are seen once only, and the result of one's advice remains unknown. Of the 35 cases here recorded, 14 were seen only once, and nothing certain is known of their progress; but of other cases seen only once inquiries were made, and it was found that they had so greatly improved that they did not think it worth while to come again. It is a fair inference, therefore, that some of those who were not heard of had the same reason for ceasing to attend. Taking, however, those only whose subsequent history is known, all but one recovered or very greatly improved when their diet was rectified; and these were more than half of the whole number seen. The total number is too small, it is true, to draw any very large or confident conclusion from, but as far as they go they show, among those as to whom the result is known, a rate of between 94 and 95 per cent. of recovery or of very great improvement, and this is too striking to be ignored.

Application of our second principle, that of constancy in the association of the effect with the possible cause, does not yield such a favourable result. It is certain that the positive association of an excess of fats or carbohydrates, or a deficiency of meat, in the diet with mental disease in the consumer is not constant. The denizens of Arctic climates, who live largely upon blubber, are not known to suffer disproportionately from mental disease, nor are those considerable populations of Eastern countries who live upon an exclusively vegetarian diet; but then it is clear that the circumstances are not the same, and no principle of logic is more important, though it is not mentioned by Aristotle nor acknowledged by professors of logic, than that circumstances alter cases. That indulgence in fat which may be disastrous

to the dweller in a temperate climate need not be anything but beneficial amid eternal ice and snow; and that abstinence from meat which may be fatal to an individual or a member of a race that is accustomed to a carnivorous diet may be innocuous to one who and whose ancestors have never tasted meat. Moreover, there can be little doubt that what is harmful in the absence of meat is the absence of protein, and this may be made up by consumption of vegetable proteins.

Nor is the negative association in the least degree constant. There is abundant experience that mental disease is by no means confined to those who indulge excessively in fats and carbohydrates and those who refrain from eating meat.

The third principle cannot be applied for want of data. When there are a great many people who suffer from mental disease, and in the same population a great many who commit these errors of diet, the doctrine of Probability assures us that there must be some in whom the two will be combined casually; and among the cases recorded No. 13 seems to be such a case. But it is quite impossible to apply this principle, and to discover whether or no the combination of mental disease with error in diet is more than casual concurrence will account for, until we know (1) the total population; (2) the number of cases of mental disease; and (3) the number of cases of error in diet, in the population. In the absence of data no conclusion can be drawn.

The fourth principle, however, is more fertile in results. It assures us that if a certain change in a thing follows, though only occasionally, an action on that thing, then, although from the mere occasional sequence we are not justified in calling the action the cause of the change, yet if in each case of the sequence the change exhibits a constant character, we may then properly infer that the sequence is causal. To take a cognate instance: insanity follows, though only occasionally, excessive and prolonged drinking of alcohol; but since insanity often occurs without this antecedent, and since the antecedent often occurs without insanity following, it would be quite unjustifiable to assert, on the mere ground of antecedence and subsequence, that the drinking was the cause of the insanity. When, however, we find that whenever insanity does follow prolonged and excessive drinking the insanity always has certain peculiar characters, which are never found in insanity otherwise occurring, the case is different. This constant quality in the result does justify us in presuming that the constant antecedent of that quality is the cause of the insanity. Can we then apply this principle to the cases before us? I think we can. Here it becomes necessary to separate the two factors of excess of fats and carbohydrates on the one hand and defect of meat on the other, and to consider each by itself.

If the cases in which an excess of fat was consumed are examined it will be found that whatever other symptoms they complained of, they all suffered from severe headache. This is not a new observation. The connexion has been thoroughly established by Dr. F. Hare in his excellent book on the "Food Factor in Disease." The cases here adduced are a mere addendum to his observations, and pretend to no originality. They are, however, of value as corroboration by an independent observer of his views. While, however, the headache is the most prominent and troublesome symptom in these cases, it is not the only one. It is well known that attacks of migraine are often accompanied by mental confusion, and it appears from some of the cases here recorded that excess of fat in the diet is accompanied in them by confusion of mind, which occurs even at times when the patient is not suffering from headache. There is no case among those here recorded in which headache was complained of when there was no excess of fat in the diet. From this it must not be supposed that I suggest excess of fat as the only cause of headache; I suggest merely that deficiency of meat alone is not a cause of headache.

It seems, however, that it is a potent cause of *confusion of mind*. In case after case in which the diet was subsequently found to be deficient in meat. the mental state is described in almost or quite the same terms: "I feel muddled and dazed"; "A wave of confusion comes over me"; "I am so muddled about my work"; "I have such confusion in my mind"; "I feel half-dazed, and don't know what I am doing"; "My mind is confused"; "My head is in a muddle"; "I cannot think"; "I have a muddled feeling in my head"; "I cannot apply my mind to anything"; "I am half-silly"; "There is something in my head that causes everything to be jumbled up"; and so on.

Depression is almost as common, and is in some cases very severe. In several cases it led to contemplation of suicide, and in one to repeated attempts; perhaps, since they were repeated, they were not very determined, but still they were attempts.

Screaming fits and motiveless weeping and laughing occurred in several cases among the women.

Defects of memory, especially of the business memory—that is to say, forgetting to do things at the proper time—was noted in several cases. It is a part or a form of the mental confusion.

In three cases there were hallucinations, and in one of these the hallucinations were extraordinarily vivid, and were of sight and hearing coördinated. Case 14 would of itself serve as a text for a discourse upon the origin of ghosts and the nature of ecstatic visions, of celestial visitors, of supernatural revelations, and so forth. It is unfortunate that I was unable to follow up this case, and I may say that its very peculiar character makes it doubtful whether the mental state owed any of its origin to the diet, which, however, was certainly very defective. On the other hand, it could be urged that Cases 17 and 20 are halfway houses on the road to the same destination.

Many other inferences can be drawn from these cases, and there is one inference that will certainly be drawn, however much I may deprecate it and protest against it, and that is that I have asserted that every case of mental disease is due to excess of fat or to deficiency of meat in the diet. I make no such assertion. Obviously the cases here related form but a small proportion of those that have come under my notice since I first began, several years ago, to investigate the diet of my patients. In only a small proportion of cases could I find any definite fault in the diet; and where a fault existed, it was not always excess of fat or deficiency of meat. It surprised me to find in how many cases people live very largely on milky puddings, and I was in doubt in many cases how far the symptoms were due to deficiency of protein, and how far they were due to excess of starch and sugar. In Case 27 I have little doubt that much was due to excess of starch, and I

always made a point of inquiring into the relative proportions of all the constituents in the diet.

A word may be said as to the method of inquiry. In this, as in all things, it is most important to avoid leading questions in opening the examination. My practice is to ask, What do you have for breakfast? and so on for each meal. The next question is, Is there anything to eat that you are particularly fond of? Meat? Sugar? Fat? Milky puddings? Then, Is there anything you particularly dislike? It is important to remember that people do not reckon butter as fat. Many patients declare that they dislike fat, and never eat it, but when the question is put to them, they will admit an inordinate fondness for butter.

It should be remembered also that there are wide differences in the capability of different persons to dispose of the fat, starch, &c., that they consume, so that what is moderation for one may be gross excess for another.

A point that, to economise space, is not brought out in the cases here recorded is that those symptoms that seem to be due to excess of fat, starch, and sugar in the diet, and that are relieved by diminishing these constituents, are almost always worse in the morning, clear up towards afternoon, and are often absent in the evening. Hence I never omit to inquire, What time of day are your symptoms worst? and whenever I hear that they are worst on waking in the morning and diminish as the day goes on, I make very stringent inquiry into the diet, no matter what the symptoms may be.

Finally, let me assert once more that I do not hold that there is only one cause of mental disease. If I did so hold, I should be little better than a psycho-analist. My contention is, and I think it is borne out by these cases, and by the application to them of the true principles of ascertaining causation, that in a certain number of cases of mental disease, small in proportion to the whole, but considerable in the aggregate, the disease is due to error in diet, and can be cured by rectifying the error in diet.

THE LOWER UTERINE SEGMENT, ITS ORIGIN AND ITS BOUNDARIES.[1]

BY E. HASTINGS TWEEDY, F.R.C.P. IREL.,
EX-MASTER, ROTUNDA HOSPITAL, DUBLIN.

THE lower uterine segment, its origin and its boundaries, is a subject which has held for gynæcologists of the nineteenth century an absorbing interest. The most eminent specialists endeavoured with the greatest assiduity to solve the problem, and yet the present century opened with the mystery still unsolved.

What is the uterine segment? At what period does it make its presence apparent? Is it caused by a stretching of pre-existing tissue, or is it an entirely new growth? From what pre-existing tissue does it arise? Whether from the structures above the internal os or from the cervical tissue below it? These are the questions which call for an answer.

Modern gynæcologists have lost interest in the anatomical entity; not that their knowledge is any more precise than that of their predecessors, but rather from a conviction that the subject has been talked out and that they have no further available material to enable them to form any definite opinion. In this I think they are mistaken, for the controversialists of the past did not appreciate the importance of the endo-peritoneal tissue, which we now know divides the body of the uterus from its cervix and forms an inpenetrable barrier between the two. Whether this tissue be derived from the base of the parametrium or from the pelvic fascia seems a point of secondary importance: What concerns us chiefly is that it exists; that it is very strong; that it crosses the pelvic inlet and supports the contents of the abdomen; that it is inserted into the muscle fibres of the uterus and, in fact, becomes their tendinous extension (this accounts for its richness in unstriped muscle); and that it fixes the uterus and forms the angle of the internal os—"the fixation hinge."

It is unnecessary for me now to enter into a detailed account of this structure. I have done so on two former occasions. Our President, too, has admirably reviewed its anatomical bearings.[2] Again, the brilliant results of the modern operation for the cure of prolapse by the shortening of what are know as Mackenrodt's ligaments have made any further remarks of mine superfluous, and it is no longer needful to prove what I am sure all admit is a self-evident fact. It is certain that it constitutes the true boundary between the cervix and the body of the uterus and we can no longer accept the artificial demarcations which were relied on by our predecessors.

This diaphragm depends for its tension on the tone of the uterine muscles. With a tightened internal os the fibres become taut; with a relaxed os they sag. One of the earliest phenomena of pregnancy is slight dilatation of the internal os. This sign is difficult to demonstrate and has not, so far as I know, been described. Its presence is at once apparent when a sound is passed into the uterus, and so true is this that the phenomenon should be sufficient to arouse suspicion as to the true condition present. The relaxation of the sphincter brings about the changes which we associate with Hegar's "early sign of pregnancy." The interdependence which exists between the circular fibres of the internal os and the endo peritoneal tissue is also noted by the great tightening of the os which is observed in cases of procidentia. The sagging of the diaphragm is followed by slight dropping of the uterus and shallowing of the lateral fornices. This tendency to prolapse is soon arrested by the power of the uterine fibres to make again the fascia taut. This they do by their continuous retracting force. Retraction is a law of all unopposed muscle fibres, and the uterine fibres are no exception to this rule. When the tension at their insertion is relaxed, consequent on the opening of the os, they retract. By this mechanism the internal os is gradually pulled upward and at the same time it opens more and more, so that the opening of its attached fascia may be compared to the swinging inwards of folding doors. Towards the later months of pregnancy the growing ovum is no longer able to accommodate itself within the body of the uterus, and must move downwards through this naturally provided hernial opening; in fact, we may consider the mechanism as constituting the most complete illustration of a hernial process within the body.

Before we consider the changes which arise in the cervix as a result of direct pressure now exercised on it by the ovum, let me summarise the points which are at present established.

[1] A paper read before the Obstetrical Section of the Royal Academy of Medicine in Ireland.

[2] Transactions of the Royal Academy of Medicine in Ireland, Obstetrical Section.

1. The endo-peritoneal tissue forms an important diaphragm for the pelvis.

2. Its fibres are inserted into the muscle bundles of the uterus and may be considered the tendinous extremities of the latter.

3. The diaphragm is held in tension by the uterine muscles; it supports the uterus, prevents descent of the contents of the abdomen, and constitutes a barrier which effectively protects the cervix from pressure.

4. The os internum opens at an early period of pregnancy and this relaxation corresponds with Hegar's "early sign of pregnancy."

5. Consequent on this opening the uterus and abdominal contents sag downward and the fornices become somewhat shallowed.

6. The uterine muscle fibres are put out of tension by the opening of the os with consequent contraction and retraction of these fibres and the upward movement of the diaphragm with its attached blood-vessels and ureter. This upward movement produces a still wider opening of the diaphragm and will permit the growing ovum to pass through it and allow the latter to exercise direct pressure on the structures immediately beneath. To this structure I now desire to call attention, for many erroneous impressions have arisen in connexion with the cervical portion of the uterus. It is spoken of as a structure which is easily dilated and stretched, and in proof of this the text-books adduce the extraordinary elongation of the tissue which occurs in procidentia uteri. It is certain that this lengthening is not due to any stretching action, and, indeed, the cervix is a tissue which does not easily tolerate a stretching force. All have experienced the difficulty in procuring slight dilatation by means of graduated metal dilators. Even in labour the cervix cannot be forcibly stretched save within narrow limits. Again, I have seen it pulled with vigour by volsella forceps during a two hours' operation without displaying any appreciable elongation. If the elongated cervix of prolapse were really a process of stretching it would be pulled thin as a piece of twine; instead, it remains of normal thickness, no matter how greatly it is strained. We must, then, conclude that the cervix is not a stretchable structure but, on the other hand, that it has a power of extraordinarily rapid growth when stimulated by continuous pressure.

In a case reported by Dr. Henry Jellett a small cervical stump left after the performance of a subtotal hysterectomy was firmly stitched to the aponeurosis of the abdominal wall in an effort to cure prolapse. It remained fixed in this position, but prolapse recurred and it was of so extreme a nature that the os protruded for many inches through the vulva. This enormous elongation was not accompanied by diminution of its diameter, but rather the reverse, and in this instance the increase of the cervix must have amounted to about fifteen times its original size. Further, let it be noted that the vaginal portion of the cervix when not subjected to pressure does not enlarge.

The similarity in the growth of the cervix as described above with that of the growth of the lower uterine segment is very apparent, and now that we know that the ovum during the second half of pregnancy is certainly pressed against the upper portion of the cervix we have no difficulty in following its subsequent development into the part known as the lower uterine segment. So long as it was supposed that the lower uterine segment arose by a stretching or unfolding process, an insuperable objection seemed to be forthcoming to the belief that it arose from the cervix through the fact that the cervix did not diminish in length materially throughout the pregnant state. That the cervix does diminish to some extent all competent authorities are now agreed, and it is clear from the evidence already advanced that it will only require a very minute portion of the upper part of the cervix to suffice for the growth of the lower uterine segment. We see, then, that the ring of Müller must be considered the undilated portion of the cervix which has as yet not been subjected to direct pressure, and Bandl's retraction ring must consist of the structures which go to form the internal os.

The subject under review has a practical importance both for the obstetrician and the gynæcologist. We no longer should consider the stretching and dilatation of the cervix as synonymous terms. We must think of the cervix as growing rapidly large rather than of its being rapidly stretched. It, in common with every other tissue of the body, stretches, no doubt, to a certain extent. The stretching process works within narrow limits, and is absolutely dependent on the margin of its previous growth. This, too, is true of the lower uterine segment. The gynæcologist on his part must once and for all dismiss the notion that the retention of the cervical stump tends in any way to strengthen the pelvic diaphragm, and must realise that an abdominal operation undertaken for prolapse may fail in its purpose if the cervix be retained.

Dublin.

A SEARCH FOR TYPHOID CARRIERS AMONG 800 CONVALESCENTS.

BY A. STOKES, M.D. DUB., F.R.C.S. IREL.,
CAPTAIN, ROYAL ARMY MEDICAL CORPS;
AND
C. CLARKE, M.B. LOND., F.R.C.S. ENG.,
LIEUTENANT, ROYAL ARMY MEDICAL CORPS.

IN the late months of 1914 and early months of 1915 a serious epidemic of typhoid had occurred amongst the civilian inhabitants of an area about to be taken over by British troops. To diminish the risk of the epidemic spreading to the coming troops the sanitary officers of the R.A.M.C. advised that the civilians then ill and those convalescents who could be found should be removed to an isolation hospital some distance away and kept there till proved free from infection. The following is an account of the attempt to eliminate the carriers before the patients were discharged.

The patients were searched for in their homes by search parties under direction of the R.A.M.C. authorities, removed to local hospitals organised by the Friends Ambulance Unit, and when in a condition to travel removed to the isolation hospital. Owing to this method a large majority arrived at the hospital convalescent, and the diagnosis had to rest on the history provided by the unit and agglutination reactions. Very few of the first parties of patients arrived in the acute stage. Thus, an accurate idea of the actual numbers who had suffered from enteric was difficult to obtain, and further, it was not easy to estimate the relative proportion of true typhoid to paratyphoid B infections. This difficulty was increased as many of the patients had been inoculated with stock army vaccine, many others

had been treated with mixed typhoid group vaccines while ill, and very few knew if they had or had not been inoculated. Of 927 admissions it was estimated that 117 had certainly not had typhoid, but had suffered from tuberculosis, diphtheria, or bad food.

Diagnosis.

A bacteriological diagnosis was definitely obtained in only 165 cases, the infecting organism being isolated from the blood, excreta, rose spots (10 cases), and from the gall-bladder of some that came to necropsy. B. typhosus was found in 145 cases, B. paratyphosus B in 19 cases, and B. paratyphosus A in only 1 case. The proportion of 7 cases of B. Eberth infection to 1 paratyphoid B is possibly correct for the earlier part of the epidemic, but the cases admitted during the later stages showed 4 B. Eberth to 5 paratyphoid B.

In the remaining cases the diagnosis depended on agglutinations. These were done microscopically, and after 20 minutes' incubation were examined with a dark-ground illumination, this method giving very clear-cut readings. Any serum that gave a negative or doubtful reaction to B. Eberth was tested against B. paratyphoid B. A dilution of 1 : 100 of the serum giving a well-marked reaction was considered sufficiently high for B. Eberth, and 1 : 250 to 1 : 500 for B. paratyphoid B was read as positive. Later on as the facilities developed macroscopic agglutinations as recommended by Dreyer were used with success, and positive reactions were obtained in very much higher dilutions; 1 : 1000 to 1 : 2500 in patients convalescent from B. Eberth infections, and 1 : 5000 to 1 : 20,000 in B. paratyphoid B. Any uninoculated patient who gave a negative agglutination reaction was excluded. Those inoculated before admission as convalescents, and in whom it was not possible to exclude enteric from their history, were included as probable cases and examined before discharge. This would lead to a certain number of inoculated patients who had not suffered from enteric being included, and therefore the percentage of carriers found would appear low, but in the presence of a widespread epidemic it was considered wise to err on the safe side.

Examination before Discharge.

The patients were examined at varying periods of convalescence. Until the number awaiting discharge had been dealt with, the majority were not examined till the 10th to 16th week after commencement of the illness, but as the accumulation was worked off they were examined at any time after defervescence that the medical officer in charge regarded them as fit for discharge.

The excreta of patients, both fæces and urine, were invariably examined before their names were put on the discharge list, and the following is a note on the technique.

Technique.—During the first three weeks considerable difficulties existed owing to the lack of a laboratory at the hospital, entailing the transport of specimens a considerable distance and preventing their examination in a perfectly fresh state. When the necessary equipment arrived and the laboratory was opened at the hospital the patients were given the night before examination a purgative, and the specimen was brought to the laboratory as soon as possible. The specimens were generally all available by 9 A.M. Any specimen arriving after 11 A.M. was refused, as it was thought that the patient must have been constipated and it would not present a fair chance of finding enteric group organisms. It is a well-established fact that prolonged delay in the colon gives the B. coli group the opportunity to outgrow B. Eberth.

The technique varied as our experience grew and as the results suggested modifications. At first owing to the very large accumulation of convalescents a single examination only was possible in each case. This was done by direct plating of the stools on several MacConkey plates. In this way 137 patients were examined and liberated after one examination. We then adopted Browning's brilliant-green technique and examined the excreta on two occasions as often as possible on two consecutive days. It was thought that with two purgings we would be more likely to obtain a specimen which had not been unduly delayed in the colon. A thick emulsion of the stools was made in water, and after the solids had settled to the bottom, in about 20 minutes, the brilliant-green tubes were inoculated with the supernatant fluid, about five or six large loops being used for each tube. At first we used four dilutions, 0·25, 0·4, 0·5, and 0·6 c.c. of 1 : 10,000 solution of brilliant-green being added to 10 c.c. tubes of 2 per cent. peptone water. The tubes were incubated for 24 hours and plated on Endo's fuchsin-agar, being examined after 20 hours' incubation. The results were satisfactory, but the technique was very laborious. Further, it proved that when a carrier was found the best dilution was 0·5 c.c. of brilliant-green solution, in some cases the culture being pure. About 100 examinations were done in this way, and then we determined to try direct plating. After a further 100 examinations we concluded that we would get the best results by combining the two methods with a slight modification of the technique originally recommended by Browning.

The usual thick emulsion was made and allowed to settle. Then six large loops of emulsion were transferred to one tube of peptone water with 0·5 c.c. of 1 : 10,000 brilliant-green added. This was incubated for 8 to 10 hours and then replated on Endo's medium, the plate being examined at the end of 20 hours. At the same time one plate was spread from the emulsion, a very small loop being spread in successive quadrants of the plate. The plates were examined with a lens and all likely colonies pricked off into lactose, mannite, saccharose, and broth. The broth tube was examined for motility and, if the sugar reactions were those of the typhoid group, for agglutination with the specific sera. We used the sera supplied by the Lister Institute and at one-half their extreme titre. Eberth serum of a titre of 1 : 2000 was diluted so as to give a dilution of 1 : 1000 in the agglutination preparation. At this dilution we never experienced any difficulty from cross agglutination or the presence of group agglutination. The sugar reactions being positive and the agglutination good we placed the organism in the typhoid group and regarded the patient from whom it was isolated as a temporary carrier, the further sugar and milk reactions being started as a final confirmation. Litmus-whey-agar proved a most useful medium, and with it we found it possible to get the milk reactions in 36 hours instead of waiting four days.

No abnormal strains were found among the Eberth strains isolated; they all were motile and easily agglutinable. The paratyphoid A did not form gas on mannite or glucose in Durham tubes, but when planted in solid glucose-agar it made gas abundantly. One paratyphoid B strain was apparently self-agglutinating, and in broth culture appeared as large clumps with some motile forms, the clumps being themselves motile.

Carriers Found.

An arbitrary period of three months after the first onset of the fever is taken as the time when a patient should have ceased to excrete typhoid bacilli. Patients excreting up to that time and not after are regarded as temporary carriers; if they continue to excrete after that time they are regarded as chronic carriers. We quote, for the sake of comparison, Klinger's figures for the examination of 604 convalescents:—

Temporary intestinal	70 or 11·0	per cent.
Temporary urinary	10 or 1·7	,,
Chronic intestinal	6 or 1·0	,,

Our figures were as follows for 810 cases examined, of which some probably had not enteric, as explained above, and many were not examined in the "temporary carrier" period:—

Temporary intestinal	32 or 4·0	per cent.
Temporary urinary	33 or 4·0	,,
Chronic intestinal	11 or 1·6	,,
Chronic urinary	2 or 0·24	,,

These carriers were divided as to sex as follows:—

Temporary Carriers.

	B. Eberth.	B. para. B.	B. para. A
Male, intestinal ...	13 ...	8 ...	5 ... —
Female, ,, ...	19 ...	12 ...	6 ... 1
Male, urinary ...	24 ...	24 ...	— ... —
Female, ,, ...	9 ...	9 ...	— ... —

Of these temporary carriers there were only 3 who persistently excreted after the primary examinations, and these eventually became chronic carriers. The sex distribution was as follows:—

Chronic Carriers.

	B. Eberth.	B. para. B.
Male, intestinal	3	3 ..... —
Female, ,, ...	8	3 5
Male, urinary	2	2 ..... —
Female, ,, ...	—	— ..... —

The well-known fact that females more often become chronic carriers than males is well shown in these figures, the incidence of female chronic carriers being nearly three times that of males.

All carriers discovered at the first or second examination were kept under supervision in the hospital and examined at weekly intervals. Two examinations were done on successive days until they should have ceased to excrete typhoid bacilli. Six consecutive negative examinations were required as the standard before the patient was deemed fit for discharge. One carrier, who eventually became a chronic carrier, had a period of intermission, being negative on five successive occasions, but on the last before discharge B. Eberth was again found. After this intermission she continued to excrete quite regularly for three months. The other chronic carriers were easily detected at each examination. No patient was found excreting B. paratyphoid B in the urine either in the acute or convalescent stage of the disease. Among the female intestinal carriers, of which there were 19, 6 were found on the second examination, the first having been negative. The second examination was done on the second successive day of purging, which indicates the importance of getting a specimen which has undergone as little intestinal delay as possible.

Comparison of the Two Methods of Examination.

In comparing the two methods used it would require a very large number of examinations to come to a conclusion as to their relative merits. The following is a short summary of 26 carriers found while we were using the two methods in conjunction:—

		Direct plate.	Brilliant-green plate.
B. Eberth	15	15	14
B. paratyphoid B ...	11	3	8

This leaves out of the picture the relative ease of the two methods so far as finding the colonies. The balance from this point of view is strongly in favour of the brilliant-green method, in which it was common to get a practically pure plate of the typhoid group organism. On the other hand, B. Eberth seems more susceptible to the action of brilliant-green, or it may be that its relatively slower rate of growth does not allow it to take advantage of the lowered competition as quickly as the faster-growing paratyphoid B. At any rate, we did not so often get a pure or nearly pure plate with B. Eberth, and in some cases we obtained negative results when the direct plate had been positive. Some typical cases are shown here in their successive examinations.

B. Eberth.

		Direct plate.	Brilliant-green plate.
(1)	14-4-15 ...	Positive. ...	Negative.
	15-4-15 ...	,, ...	,,
	7-5-15 ...	,, ...	Positive.
	8-5-15 ...	,, ...	,,
	31-5-15 ...	,, ...	Negative.
	1-6-15 ...	,, ...	,,
	26-6-15 ...	,, ...	,,*
(2)	27-5-15 ...	10 colonies. ...	Negative.
	4-6-15 ...	8 ,, ...	Pure growth.
	5-6-15 ...	Numerous. ...	,, ,,
	8-6-15 ...	,, ...	,, ,,
	9-6-15 ...	40 colonies. ...	60 colonies.
	10-6-15 ...	Numerous. ...	6 cols. 24 hours' incub.; Neg. ... 36 hours' incub.
	13-6-15 ...	Pure growth. ...	Negative.
	15-6-15 ...	Negative. ...	,,
	19-6-15 ...	Positive. ...	,,
(3)	4-6-15 ...	? ...	Pure growth.
	7-6-15 ...	6 colonies. ...	,, ,,
	9-6-15 ...	Almost pure. ...	Numerous.
	10-6-15 ...	6 colonies. ...	6 cols. 24 hours' incub.; Neg. ... 36 hours' incub.
	14-6-15 ...	Negative. ...	Negative.
	15-6-15 ...	Few colonies. ...	,,
	16 to 19-6-15 ...	,, ...	,,

Paratyphoid B.

(4)	3-5-15 ...	Negative. ...	Negative.
	4-5-15 ...	Positive. ...	Positive.
	31-5-15 ...	Negative. ...	Pure culture.
	1-6-15 ...	,, ...	,, ,,
	26, 28, 29-6-15 ...	,, ...	,, ,,
	14-7-15 ...	3 colonies. ...	,, ,,

* In four dilutions of brilliant-green.

This series of 4 cases shows well the advisability when possible of combining the two methods. In each case the plates were examined by the same observer and the technique was identical, yet the variability of the results is marked. It further confirms the contention that it is better to incubate the brilliant-green culture only nine hours, as after that, at least with B. Eberth, the organism is sometimes overgrown. We never found this in the case of paratyphoid B in which the brilliant-green plate was generally very much the better, often showing a pure culture.

Treatment.

As to the treatment of the intestinal carriers, which has always been a very difficult matter, we only tried two experiments. Arsenic in the form of Fowler's solution having been found to be useful in eliminating B. Eberth from the stools, we thought that possibly the intravenous administration of salvarsan would give a better chance of getting the arsenic to the site of growth of the organisms—i.e., the gall-bladder and bile-ducts and capillaries. Accordingly two intestinal carriers were given 0·3 grm. intravenously. It did not alter their condition in the least, as they both continued to excrete for some time afterwards.

Of the temporary urinary carriers only 2 of the 33 found became chronic carriers. The 33 temporary carriers were treated with urotropin for about 10 days, and then after an interval of one week were re-examined. All consistently proved negative on four consecutive examinations. The 2 who excreted bacilli after the 12th week from commencement of the illness, and in one case up to the 20th week, both suffered relapses in a late period of convalescence. They both continued to excrete up to the 8th week in one case, and the 10th week in the other, after the inception of the relapse. They were both apparently benefited by the treatment so that we give it in detail.

CASE 1.—Aged 13. Illness commenced 26-1-15; admitted on 37th day. Widal positive to B. Eberth. Relapse 12th week. Defervescence complete on the 12th day. Urine contained B. Eberth on the following dates: 14, 18, 29-4-15; 25, 28-5-15; 13-6-15. He had been through the routine course of urotropin during the period of these examinations. 15-6-15: Urine positive, no albumin. 16-6-15: 500 mill. stock army vaccine. Reaction: Local, well marked; general, slight temperature, 98·8° F.; focal, cloud of albumin, culture positive. 17-6-15: By mouth, 6-hourly, urotropin 10 gr., ac. sodii phos. 20 gr., ac. boric. 3 gr. Subsequent examination of the urine was as follows: 17, 18, 19, 21, 22, 23-6-15: Decreasing albumin and colonies. 24-6-15: Negative to albumin and culture sterile. 25-6-15: 1000 mill. army vaccine; mixture discontinued. 27-6-15: Five colonies, no albumin. Examinations were always negative on the following dates: 1, 2, 3, 6, 13, 15-7-15.

CASE 2.—Aged 67. Illness commenced 25-2-15; relapse 7th week. B. Eberth found in the urine on following dates: 24-5-15; 3, 8, 14-6-15. During this period he had the routine administration of urotropin. 16-6-15: 1000 mill. army vaccine. Reaction: Local, slight; general, marked, temperature, 101·8° F.; focal, heavy cloud of albumin, erythrocytes and leucocytes in deposit, frequency for 24 hours. 17-6-15: Culture positive; mixture ordered. 19, 18-6-15: Culture negative and albumin decreasing. 25-6-15: 1000 mill. vaccine; no reaction; mixture discontinued. Subsequent examinations were consistently negative on the following dates: 26-6-15; 1, 6, 12-7-15. The albumin never reappeared after 20-6-15, four days after the first dose of vaccine.

These two cases were apparently benefited by the treatment, as after they had recovered from the focal reaction, which was marked in both, they ceased to excrete B. Eberth. The presence of the rather marked focal reaction is also suggestive and leads us to hope that there is perhaps a better chance of getting rid of the renal focus in urinary carriers with a large dose of vaccine than has been attained by the smaller doses.

Age Incidence of Carriers.

The age incidence of carriers is of interest, and the results bear out the known fact that temporary carriers occur more frequently in the early period of life, and that chronic carriers are most often found among the middle-aged. Of 350 women over 15 years examined, 8 were found to be chronic carriers, their average age being 45 years. This, however, did not appear to hold good among the males, as 2 of the 3 chronic intestinal carriers were under 20 years. We give here the list of the chronic carriers and the dates of examination, inception of fever, and age.

Females.

No.	Age.	Onset.	Date of examinations.
(1)	29	1-3-15	Pos. 14-4-15 and 6 times after; last examination 25-7-15.
(2)	46	27-2-15	,, 8-5-15 and 6 times to 15-7-15.
(3)	46	3-3-15	,, 4-5-15 ,, 8 ,, ,, 18-8-15
(4)	60	14-2-15	,, 25-4-15 ,, 5 ,, ,, 25-7-15. Intermission for 3 weeks.
(5)	35	23-12-14	,, 30-3-15 and 8 times to 25-7-15.
(6)	48	26-2-15	,, 4-5-15 ,, 6 ,, ,, 19-8-15.
(7)	53	?	,, 27-5-15 ,, 6 ,, ,, 18-8-15.
(8)	50	1-5-15	,, 11-6-15 ,, 5 ,, ,, 19-8-15.

Males.

(1)	19	19-2-15	Pos. 27-5-15 and 10 times to 21-7-15.
(2)	16	6-4-15	,, 4-6-15 ,, 10 ,, ,, 21-7-15.
(3)	49	1-4-15	,, 4-6-15 ,, 10 ,, ,, 21-7-15.

It is not possible to give the exact number of women over 40 admitted, but of 810 cases who probably had enteric 43 per cent. were women. If that percentage holds good, it would appear that there were 86 women over 40 who had suffered from enteric, as there were just 200 admissions over that age. Among these 86 were found 6 chronic carriers, and among the 270 under the age of 40 only 2 were shown to be permanent carriers.

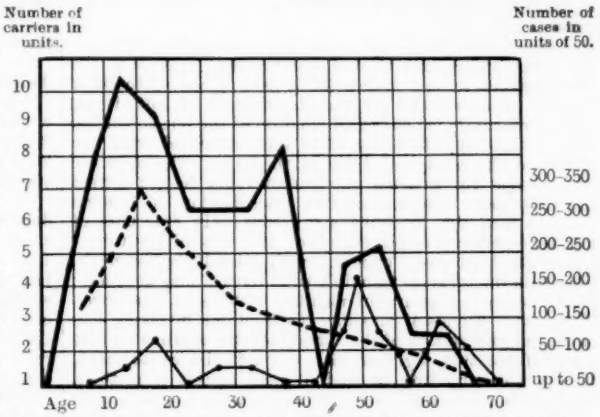


Chart showing age incidence of the epidemic (interrupted line) plotted in units of 50; age incidence of temporary carriers (continuous line) plotted in units; age incidence of chronic carriers (dot and dash) plotted in units. Age periods of 5 years in each case.

The above curves show the age incidence of the epidemic, the figures being for the 927 admissions, the age incidence of temporary and of chronic carriers.

In conclusion, we have to acknowledge our great indebtedness to the medical officers of the hospital who did all they could to help us.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF ODONTOLOGY.

War Injuries of the Jaws and Face.

MEETINGS of this section were held on Feb. 28th and March 6th. Members of the Section of Surgery were present by invitation. In conjunction with the debate an exhibition of models, skiagrams, and appliances was held for several days. Mr. H. BALDWIN, the President of the Odontological Section, was in the chair. He briefly stated his views in introducing Mr. Lewin Payne, the opener. The lower jaw, being the least fixed of all the bones, was, especially when comminuted, subject to a strong muscular pull, hence displacement was apt to occur. The dental surgeon's aim in the cases under discussion must be to restore the remaining portions to their relative positions to each other, and they must be retained sufficiently rigidly to favour Nature's efforts at repair. The apparatus used inside the mouth must be as perfect and neat as possible, and offer no impediment to free irrigation of all parts of the buccal cavity. Patients wounded in this way were now being sent direct to special hospitals without loss of time. He spoke highly of the admirable organisation of dental work in France, from which country several stomatologists of eminence attended the discussion, including Dr. Hotz of Paris, while Dr. Hayes represented the dental division of the American Ambulance. It was regrettable that several distinguished dental surgeons in the army were doing ordinary medical, not dental, work. He advocated a Care Committee for soldiers who had been wounded in the jaws, to promote the interests of such cases, not only while they remained in the army, but so that when they had been discharged they could continue to receive equally expert treatment.

Mr. J. LEWIN PAYNE, in opening the debate, said that his experience was based upon the treatment of 22 cases and two visits to France. The French had always been

noted for their dental skill, and it would be difficult to exaggerate the completeness of their dental organisation in connexion with the war, or the benefits being afforded to their wounded soldiers. In our own country excellent work was being done on the same lines at Croydon and Wandsworth military hospitals The severe fractures of maxilla and mandible caused by rifle bullets or shells differed from civil cases of jaw injury in the frequency of the occurrence of multiple fractures, comminution of bone, loss of substance, degree of displacement of fragments, the frequency of foreign bodies (such as a piece of tooth or bone or denture), and by the cicatrisation of soft tissue, which frequently led to the elimination of the buccal sulcus. The chief trouble in these cases was associated with the mandible, the most-used bone in the body. The mere use of bandages for external application would seldom correct the deformity. He suggested a classification on clinical findings into the following six groups: (1) Fractures of mandible without displacement of the line of occlusion; (2) single fractures of mandible with lateral displacement; (3) single fractures of mandible with vertical displacement; (4) two or more fractures of mandible with loss of substance; (5) gunshot wounds of maxilla; (6) fractures involving loss of the anterior portion of the mandible, the maxillæ, or the whole of one side, together with the soft tissues adjacent. It was not surprising to find a great variety of method, because the number and diversity of the cases now seen compelled the breaking of new ground. He urged that the dental surgeon should be called in as soon as possible after the infliction of the wound. Even if it were too early to apply a splint or any apparatus he could attend to the cleanliness of the mouth, and would be able to decide as to the best time for any needed operation. Certainly there should be a close collaboration between the general and the dental surgeon: the lack of such coöperation had led to the performance of operations of unnecessary severity and the sacrifice of tissues which might have been saved. No attempt should be made to perform a plastic operation to close the gap until an interdental splint had been placed in position. The work of the dental surgeon should commence as soon as the patient had recovered from the shock; it would save much loss of occlusion, such as was the lot of too many cases. Efficient drainage was the first essential principle of treatment, and thorough irrigation must be carried out from the start. Unions of the maxillæ did not present such difficulties as those of the mandible, for the former had the support of other bones, and also a free blood-supply. If sepsis could be avoided, union in the upper jaw usually occurred in a few weeks. Restoration treatment he considered under the following four heads: (1) Reduction of displacement of bony fragments; (2) retention of those fragments in a position which allowed of normal occlusion; (3) reduction of cicatricial contraction, the restoration of muscular equilibrium, and the remoulding of the facial tissues; (4) the fitting of a permanent prosthetic appliance. It was erroneous to suppose, as some declared, that the application of an interdental splint at an early stage tended to promote sepsis. If properly constructed, the splint could easily be kept clean, and by assisting the irrigation of the parts the period of suppuration was reduced. A mechanical restoration appliance used soon after the infliction of the wound prevented cicatricial tissue from pulling the remaining portions of the jaw out of their normal place during the healing process. To favour osseous union it was important to secure rest of the fragments, though not absolute fixation; removal of foreign bodies from the vicinity of the lesion; cleanliness of the mouth and the application of massage. Though differences of opinion as to methods of treatment were inevitable, he believed there would be general agreement among dental surgeons on the following points: (1) That nearly all the jaw injuries occurring in the course of the war required some dental treatment; (2) that such treatment should be commenced as early as possible; (3) that these patients should be referred to dental surgeons; and (4) that there would be great advantage in segregating such patients into special hospitals or departments devoted to this work.

Dr. HAYES (of the American Ambulance) showed photographs of some very severe cases, and emphasised the need of coöperation between surgeons and dental surgeons. He brought for exhibition 30 of the 380 cases which had been treated by the staff. No new pathological problems or conditions had been met with in the war cases; the difficulties encountered were due to the variety and complexities of the conditions met with. The presence or absence of a single tooth sufficed to quite change the method of dealing with a case. There were now 29 war dental centres in France, and he felt that there should be dental surgeons actually at the front to give first-aid and decide what remaining fragments of jaws and teeth should be saved. Some very fine work had been done in improvising splints and apparatus for severe cases.

Dr. HOTZ also spoke of the need of the intervention of the dental surgeon in many face injuries, which he divided into (1) immediate intervention; (2) intervention after several weeks or months; (3) fractures associated with much facial destruction. There were great difficulties needing special knowledge and experience in re-establishing normal occlusion in a mouth to which it was difficult to obtain access.

Mr. J. F. COLYER spoke in some detail of his work on 200 dental cases at the Croydon War Hospital, where the surgical work was under the charge of Sir Frederic Eve. This was the first effort to place war cases of injury to the jaw under a dental surgeon. There were many cases in which the fractures had remained ununited for several months. He considered it absolutely necessary to remove the teeth on either side of the fracture; this he made a rule. It must not be forgotten that these were military cases and the surgical staff were there to make the men efficient; to this end men were turned out with their masticatory powers as far as possible restored, a graduated diet-table being one of the means employed. It was essential that no foreign body should remain between the fragments. There were now 130 dental cases under treatment at the Croydon War Hospital.

Sir FREDERIC EVE spoke of his methods in performing grafting and transplanting operations in severe cases, and showed photographs of results achieved. He laid especial emphasis on the need, in cases of severe comminuted fracture of the mandible, of preserving any fragments of bone which might be viable; if they did necrose, then they could be removed later.

Mr. W. HERN referred at length to his experiences and methods of treatment at No. 3 General Hospital. He spoke of the difficulties in the early stages on account of the degree of sepsis present; also in those cases presenting necrotic sequestra of bone which were being exfoliated for some time after the injury. Intervals in the treatment could be most usefully devoted to massage and stretching of the cicatricial tissues, and he had been surprised at the resulting suppleness in many cases. He failed to see the need of excising the teeth on each side of every fracture. He exhibited a number of models of difficult cases.

Mr. MONTAGU HOPSON agreed that it was often desirable to sacrifice some degree of occlusion in order to secure bony union, but the degree of mal-occlusion so achieved must be taken into consideration. If the mal-occlusion was likely to be marked he preferred fibrous union, which was often very dense. With regard to the aim to make the patients efficient soldiers again, there was a class of severe injury which made it certain that the patient could never be efficient again, and every effort should be made to render their civil existence as comfortable as possible. He narrated a number of cases of special interest.

Mr. STANLEY MUMMERY spoke particularly of cases in which there were portions of the mandible missing or in which some part of the arch had been destroyed. The class of case which could be most beneficially discussed was that in which the missing portion did not exceed ½ to ¾ inch in diameter, and he referred with satisfaction to the good results obtained in them by the method of Mr. J. F. Colyer. He emphasised the importance of gradual sustained pressure in the reposition of fragments as opposed to the exertion of greater force for shorter periods.

Mr. G. NORTHCROFT said he found the most difficult cases to deal with were those in which no teeth remained in one fragment; and endorsed the view that plastic operations should not be performed on the jaw without consultation with the dental surgeon.

Mr. NORMAN BENNETT divided cases according to the interval which elapsed before they came under efficient treatment. Cases from the Eastern war area reached the dental surgeon in this country mostly after three months of treatment in which the surface and skin wounds had been dealt with, but their bony lesions had been practically disregarded. This greatly enhanced the difficulty

of efficient treatment. In reference to the chief point around which the discussion had centred, whether bony union, with defective occlusion, should be sought after, or fibrous union with more perfect occlusion, he did not incline to the former view; moreover, in so many cases was there serious loss of substance that bony union could not reasonably be hoped for; only in the slighter cases in which the error in occlusion was not likely to be serious. He agreed with Mr. Stanley Mummery as to the good results obtained by steady continuous pressure. He considered that the fixed cap-splint was only desirable under two opposite conditions: one in which there had been a considerable loss of parts, and that in which the loss of bone or tissue was but slight. He related some interesting cases.

Mr. F. J. BENNETT expressed the hope that teeth removed under war conditions would be carefully preserved for future examination as to the healing of the pulp after severe injury. He believed this would result in advances of knowledge on the anatomy of the teeth.

Mr. W. WARWICK JAMES said that in cases where scar-tissue was closely bound down he had been able to separate it by introducting pieces of rubber tubing into the sulcus. In one case it cured a case of inveterate dribbling.

Mr. F. J. PEARCE expressed the thanks of the section to their French confrères for the cordial reception of dental surgeons in France. He believed Mr. Lewin Payne's classification provided a very useful working basis for the cases now being encountered. He thought it should be made clear that when Mr. Colyer spoke of sacrificing the teeth on either side of the fracture, he was referring to delayed cases; otherwise the procedure would not commend itself to the speaker. He wished particularly to support the contention that the services of the dental surgeon should be sought as soon after the infliction of the jaw injury as possible. The treatment could be advantageously begun much earlier than the odontologist had previously thought possible. There was no disparity of opinion as to the need of segregating the kind of cases under discussion into special hospitals.

Mr. H. W. TURNER referred to the great efficacy of Dakin's solution as a powerful antiseptic, and particularly the even more efficient chloramine. In the case of men who had been much exhausted by fighting, nothing operative should be done until as much of the infection as possible had been got rid of by means of antiseptics. When a fracture had occurred behind all the teeth, he advocated the use of a removable cradle splint. In cases of much loss of tissue, one must look to the surgeon to do plastic operations. There should not be too great a readiness to blame surgeons when contracted mouths were seen, as there may not have been any possibility of performing a plastic operation. There seemed to be a useful field for bone-grafting in severe cases. He concluded by discussing the physiology of bone union.

Mr. LEWIN PAYNE replied on a number of the points raised in the discussion, and in order to emphasise the importance of early dental treatment showed a series of striking photographs.

HARVEIAN SOCIETY OF LONDON.

Discussion on the Treatment of Gunshot Wounds.

A MEETING of this society was held at the Stafford Rooms, Titchborne-street, W., on Feb. 24th, Dr. EDMUND CAUTLEY, the President, being in the chair.

Sir BERKELEY MOYNIHAN, in introducing a discussion on the Treatment of Gunshot Wounds, said the problem of the treatment of these wounds was one which had been profoundly altered by the experience derived during the present campaign. The new and unexpected features were dependent upon a set of circumstances different in kind from anything which surgeons had known before. These features included the character of the bullet in respect to its mode of flight, its velocity, the damage it inflicted on the parts; the quality of the infection derived either from the earth or from the patient's clothing, which was far more virulent than anything that surgeons in the present generation had experienced; and in the earlier stages of the war, at least, the conditions of the patient in respect of fatigue and anguish, which were such that he fell a very easy victim to the furious bacterial onslaught. In the early literature of the war a good deal was said about failures: failure of the antiseptic system, failure of the aseptic system, and about the upheaval which threatened the position which Lister had held in all minds. On returning from France he went over again Lister's papers to see how he had met the concrete problems with which he was faced 50 years ago, finding in so doing that Lister stood in no need of defence to-day. The new set of circumstances had reference partly to the flight of the bullet. The bullet had several different movements: a forward movement, a rotation round its longitudinal axis, and a curious movement which the French called a *mouvement de bascule*, which, he was told, those standing behind a shell in its flight could see. The apex of the bullet travelled steadily while the base twisted round in a circle of gradually diminishing extent until it came to an end at about 800 yards. The soil on which the campaign was still being fought was some of the most highly cultivated in the world; for generations it had been heavily manured and therefore contained fæcal organisms from horses, cattle, pigs, and poultry. In this discussion the quality of the wound inflicted, as well as the kind of bacterial implantation in the surface wound, must be remembered. When a bullet struck soft tissues it was probably arrested at its tip sufficiently to allow the heavier base with its greater momentum to catch up with the apex, so that a rolling action of the bullet ensued, giving an explosive effect. The torn muscles retracted unequally, resulting in little recesses and cavities in the wound. Lakes of serum were shut off completely, and if infected a very prolific growth of bacteria took place there. The projectile imparted some of its terrific momentum to substances which it struck, portions of bone which received the impact becoming themselves in a sense projectiles, and being hurled into the surrounding tissues. Portions of microbe-saturated clothing carried in by the bullet impregnated the wound with these organisms. In treating such wounds the petty little methods in use for civil cases before the war were utterly inadequate. In pre-war days it was common to apply tincture of iodine or carbolic acid to the wound, but so little effect was produced by them in wounded soldiers that by the time the base hospital was reached it was impossible for the surgeon to say what application, if any, had been made to the wound. The question of gunshot wounds should be approached from two points of view. The first was the prevention or control of infections at the earliest possible moment after the infliction of the wound; the second was the abolition or reduction of an infection which had already been set going. Before considering those aspects, however, there were certain preliminary matters to clear out of the way. First, with regard to the excision of gunshot wounds. This, of course, was the ideal method. If an infected wound could be excised, so that only clean raw surfaces were left, which it was safe to bring together by suture, then the wound would heal by first intention; it was the kind of wound which the surgeon made deliberately at an operation. But this was impossible in most cases, though it had been done for many penetrating wounds of the knee-joint, of the scalp, and of the abdomen. Colonel Gray, now at Rouen, had practised the method in many cases and placed much reliance on it. He next wished to insist that all wounds, wherever they occurred, must be treated with a certain ritual. The skin must be cleaned, loose fragments of clothing, coins which had been carried in from the pocket, fragments of bullet, bits of leather, should be taken out at the earliest possible moment, and efficient drainage established. He believed that too little regard was paid to the adequate preparation of the skin. The favourite method of preparing the skin around a gunshot wound was to paint it with iodine. He had seen tincture of iodine painted on over dung and dry earth, and an operation then carried out in the firm belief that something effective had been done to secure sterilisation of the skin. To sterilise skin was always a difficult matter; to keep skin sterile for half an hour was an almost impossible matter. And one of the most ineffective methods of preparing the skin, for operation or when a gunshot wound was to be treated, was the painting of it with any form of iodine, of any strength, with any degree of frequency, and under any circumstances whatever. It was an entirely ineffective and futile method, and, worst still, it bred a certain kind of superiority in the mind of the surgeon. If by the application of an ineffective substance like iodine to

the skin the surgeon thought he had done something of value in the ritual, it was apt to affect his whole attitude towards the future stages of the operation. The skin, therefore, in cases of gunshot wounds, should be first cleaned. There was always plenty of petrol about, useful for the purpose of getting the skin socially clean. Surgical cleanliness was brought about by the use of an antiseptic. The best was one which ought to be easily accessible——namely, Dakin's solution. The third point was the immobilisation of the wounds. If a patient had received a fracture, whether of arm or leg, some apparatus for immobilisation was usually applied. It was equally important in cases of severe wounds of soft parts. The absence of motion in a limb which had suffered a severe injury increased the comfort of the patient and considerably diminished the risk of extension of infection throughout the wound. He now came to the question of the treatment of the gunshot wound under the two headings he had indicated. The first was the control of infection from the earliest possible moment. That might be called the abortive treatment of the infection received in a gunshot wound at the time of its infliction. The surgeon had been in the habit of speaking of pure carbolic acid as something all-powerful, capable of controlling or annihilating the infection produced by any organism. As a matter of fact, pure phenol was an extremely feeble antiseptic compared with some antiseptics now in use. In blaming carbolic acid, it was well to remember that the surgeon was now being faced with problems quite different from those of civil practice, in which very grave infections had been for years almost unknown. The antiseptics which he thought of value were the hypochlorite solution, named "Dakin's solution," which was made first of all in the University of Leeds, of which Dr. Dakin was an old student. He was sent over from the Rockefeller Institute, where he was with Alexis Carrel, to carry out researches in the French hospitals. Sir Berkeley Moynihan met him within a day or two of his coming to Europe, and heard his views regarding the chances of discovery of a more powerful antiseptic. It was not long before they began to make under his formula "Solution 30," which was Dakin's solution. This possessed a bactericidal value far greater than that of carbolic acid. It was of no use to test the power of an antiseptic in ordinary watery solutions. It must be tested in the presence of either serum or pus. In the presence of serum Dakin's solution had a bactericidal value about 30 times as great as pure carbolic. A commencement was made with Dakin's solution very early, and he (Sir Berkeley Moynihan) had make a good many investigations in regard to it from the clinical standpoint, and also some from the bacteriological during the last few months. Dakin's solution was very cheap and easily made, and it diffused readily throughout the wound. It possessed a remarkable power of clearing away dirty sloughs from a wound. But the solution needed to be applied in the proper manner. Surgeons had been brought up with the notion that the ideal surgical dressing consisted of some gauze, a certain amount of wool, and a bandage. When that kind of dressing was applied to the ordinary gunshot wound of war, on taking it away a thick layer of pus was seen, even an hour or two after applying it, on the surface of the dressing. What had been done in applying that so-called antiseptic dressing, was simply to poultice the wound with pus. Obviously, that was not the best way of dealing with a wound, and Dakin's solution must not be so applied. The wound should be packed rather loosely with gauze, which could be frequently made wet by the application of fresh quantities of the solution. The various ways of doing that were simple. One of them, introduced by Carrel, was to have tubes of small size, in which were many perforations, wrapped round with Turkey towelling. These were pushed into the furthest recesses of the wound, and into them some of the solution was injected. It diffused itself throughout the wound, penetrating to the deepest recesses. Another method was to have strings dependent from the wound, to draw up the liquid, and conduct it equally to all parts of the wound. The best plan, he thought, where the wound was in a situation which allowed of it, was to have a loose packing of gauze and to send round a nurse every hour armed with a Florence flask charged with the solution, to replenish the supply. Beneath the limb was placed a photographic dish for the reception of the excess fluid and the discharges from the wound. Dakin's solution must be used fresh, not more than five days old, and it must not be heated before use. It was a little apt to irritate, and the irritation seemed greater in some parts of the world than in others. Dakin suggested that the bleaching powder from which the solution was made varied in quality. Sir Berkeley Moynihan thought that owing to the tremendous chemical force of the hypochlorite some interaction occurred, especially if other antiseptics had previously been used, and irritable products resulted. It was therefore advisable in all cases to protect the skin. The great point was never to apply the ordinary civil dressings which were customary before the war. Dr. Dakin had now made a newer antiseptic which he called "chloramine." That was approximately five times as strong as the hypochlorite; in other words, 150 times as strong as pure carbolic acid, tested with serum and pus. It was suspended in gauze and packed lightly into the wound, thus diffusing the very strong antiseptic uniformly throughout it. The results so far showed that chloramine was much stronger than anything which had been used by them before, and its power of cleaning a wound greater. Unfortunately, the necessary substances to produce it were not easily obtained. The name of it was now being changed to tolamine. The treatment of a gunshot wound, therefore, immediately after its infliction should be directed to the abortion of the infection by the immediate application of the strongest antiseptic obtainable. The question arose whether Wright's method of hypertonic saline was of any value in the early stages after the infliction of such a wound. A year ago he, with Sir Anthony Bowlby, saw at the front a great number of patients brought into field ambulances and stations, and he could vouch for the perfect accuracy of Sir Anthony Bowlby's description of the men so brought in. They were weary beyond endurance, fell asleep at once and were roused with difficulty. They were pale and cold, and often had a feeble pulse. If at this stage Wright's method was applied it was quite certain that the wounds could not be compelled at first to discharge serum. Even if serum came, he thought it would be the worst thing for the patient in his weak state. The best thing which could be done was to apply as soon as possible the strongest procurable antiseptic, in a form which permitted of free diffusion throughout the wound. The task of disinfecting wounds at the outset ought not to be very difficult, since Alexis Carrel had shown that smears taken from wounds within half an hour of infliction might only show organisms after diligent search. It was only because the organisms were very virulent or the nutrient medium very suitable that such rampant putrefaction occurred. The next question to be considered concerned the treatment of infections when such had been thoroughly set going in a wound. In most of the cases of wounds seen in England, where suppuration was already ablaze, the question became one of deciding what was the best method of controlling and eventually removing the infection. Wright asserted that by the application of a strong saline solution to the surface of a wound an outflow of large quantities of serum resulted in organisms in the wound being attacked and destroyed by this bactericidal serum. No doubt Wright's method, properly applied, produced a copious outflow from the wound. So great indeed was the drainage from an extensive wound that patients complained of thirst and consumed large quantities of water. If such drainage occurred he (the lecturer) thought it undesirable to apply drainage such as this early after the receipt of the injury, on account of the patient's general condition. Wright's solution certainly cleaned a pus-producing wound quicker than any other application; the granulations began to glow with health, and a condition resulted such as Solomon had in mind when he said "The blueness of a wound cleanseth away evil" (Prov. xx. 30). But there were certain disadvantages in Wright's method. If the application were too long continued there was a tendency for the granulations to bleed and become œdematous. And Wright's method, tested bacteriologically, was ineffective to kill the streptococcus, which was the hardiest and tardiest of all the wound organisms. In the case of wounds in France, however freely they suppurated, they rarely found the staphylococcus present. At the end of three or four days after the application of Wright's method all the organisms had gone with the exception of the streptococcus. When the granulations bled it was better to stop the method and apply something else.

Wherever possible the edges of the wound should then be drawn together, by sutures or plaster, when even the most improbable wound would sometimes heal up rapidly. A variant of Wright's method had been introduced by Colonel Lawson, R.A.M.C. Instead of putting the gauze on and constantly saturating it from a Florence flask, he used a gauze wick in which tabloids of saline were wrapped. In the lecturer's hands the patients complained of burning and smarting; he had therefore used chloretone tabloids, and with this analgesic the patients were more comfortable. Another method had been introduced by Mr. A. E. Morison, of Newcastle—namely, sulphate of magnesium with glycerine. The claims made for this method were just. The wounds so treated were vivid with health, and the streptococcus was often killed by the fifth day. One matter of great importance in the treatment of gunshot wounds was to get the patient into the open air. Recently at Sheffield he had found 16 patients with grave infections who had been out of doors day and night and who preferred to remain outside. In France Major Adye-Curran had compelled him to believe that it was a great advantage to patients suffering from severe infection to be out of doors, and to have their wounds exposed to air and sun. They ate better, slept better, and were more cheerful than when kept in the ward. In deciding whether to take a patient who was very septic into the open air no regard need be paid to his temperature chart. The value of such exposure to the air he learned many years ago at the Johns Hopkins Hospital, and this was one of the many good things which the profession owed to Halstead. With regard to vaccines he spoke with hesitation. The divergence of view on the subject was possibly due to opinions not having been based on similar events. He felt that surgeons had not given vaccines quite a fair trial. Tuffier, of Paris, had expressed the opinion that vaccines were not of the slightest use in surgical cases. Were vaccines of value when used as prophylactic agents? If Wright's hypothesis were true that vaccines did something to fortify the power of the serum against organisms with which it had to contend, then vaccine and hypertonic salt treatment were reasonable methods of dealing with wounds. The lecturer did not know whether the method had been put into practice for prophylaxis. Sir Watson Cheyne had suggested that bacteriologists might now well be employed in trying to raise the defensive power against organisms encountered in this war in the case of all new recruits. The great fact remained that the scientific triumph of this war had been gained by Sir Almroth Wright in connexion with typhoid vaccines. If any hope existed of even remotely approaching that, a very thorough trial should be given to preparation by vaccines of soldiers who were to fight in this war.

The PRESIDENT agreed that the application of iodine to wounds had proved a disappointing fetish. He did not think the serum exuded in Wright's method was bactericidal; its chief value seemed to be in the efficient drainage which it ensured. Vaccines were yet on trial in regard to their power to check the poisoning from which a patient was already suffering.

Colonel D'ARCY POWER thought that the time had come for considering the after-effects of wounds which had received more or less successful treatment since the war began. First was the question of reopening wounds already healed—as where nerve-endings were involved in scars—characteristically in painful stumps; the secondary suture of nerves; unsightly scars; and refashioning of stumps. Often the immediate result of these operations had been to start a further course of suppuration, apparently because the pyogenic micro-organisms had been lying inertly in the healed wound. He was, therefore, inclined to defer secondary operations as long as possible. He also desired to know the experience of others about the course taken by dense infiltrating scars the result of prolonged suppuration in extensive laceration of the soft tissues. His own opinion was that graduated movements made by the patient, and massage, made the tissue much more supple and amenable to treatment, making excision of the scar undesirable at least during the earlier periods. He felt sure that the immobilisation treatment of fractures and suppurating joints was carried to unnecessary lengths, and that when pain had ceased and the patient felt security in the limb, massage and less splinting might be done. Stiff joints were best treated by bending under a general anæsthetic, but this was undesirable in the case of septic joints; in their case the septic inflammation should be allowed to subside for many weeks. Turning to the medical side, those in general practice would have to bear in mind that numbers of their male patients had suffered from jaundice and would consequently be liable to inflammation of the gall-bladder and gall-stones.

Mr. W. H. CLAYTON-GREENE said he had always had a liking for antiseptics in surgery. Years ago Edmund Owen habitually cleansed his hands for operations in bleaching powder, the basis of Dakin's solution. Surgeons, however, should not forget the idiosyncrasies of patients in regard to drugs; some could not tolerate even small quantities of carbolic acid. He was much impressed by Sir Anthony Bowlby's advice in the Bradshaw lecture in regard to variation of treatment. The difficulty in assessing the value of vaccines was the absence of controls; but he thought no vaccine but an autogenous one should be used. An important problem was that of the proper treatment of sinuses with a foreign body deeply hidden away. By interference there was the liability of opening up new tracks of infection. He thought exploration should be deferred until the streptococci had been got rid of. Another point was that the endeavour to save a patient's limb should not be carried to the point at which the life was placed in jeopardy.

Mr. DONALD ARMOUR agreed with the opener's strictures concerning iodine for wounds. Many cases came from the front sadly deficient in adequate drainage, probably through lack of time; he regarded it as a *sine qua non*. He was much encouraged by the results obtained from the use of magnesium sulphate and glycerine. He agreed as to the danger in reopening wounds, especially in cases of bone injury.

Mr. ALEXANDER FLEMING spoke of his work in France from the bacteriological side. From this standpoint there were three stages of evolution of wounds. In the first the anaerobic microbes were predominant; then the blood-stained discharge contained streptococcus and putrefactive organisms. A transition stage followed, in which the anaerobic microbes tended to disappear, and finally that in which pyogenic cocci, with bacillus coli or proteus, appeared. He spoke highly of the value of vaccines, which had been in use at St. Mary's Hospital since 1903. There was a too prevalent custom to leave everything to the vaccine and expect too much from it without carrying out the various aids which were indicated.

Mr. DUNCAN FITZWILLIAMS spoke of his experiences at Malta with the wounded from the Dardanelles. He cordially agreed with the opener in regard to the need for immobilising wounds. A vaccine could not be expected to do much good in a case in which there were many pockets of pus. He also agreed that amputation might be decided on so late that the patient lost his life. Great benefit arose from exposing wounds to air and sun, except in hot climates, where he had seen wounds which were fly-blown.

Mr. A. EDMUNDS spoke of the great value of the antiseptics brought into use by his friend Dr. Dakin, in the cases he saw from Anzac. But it must be used with care, and all the details followed. If it was being used properly, the creamy pus soon became altered into viscid pus, and this provided a good indication. The gauze could be kept wet with the solution by any orderly. As to the value of chloramine, he was as enthusiastic as Sir Berkeley Moynihan, particularly in mouth cases. Chloramine was a powder, and could be used for any length of time; it could be used on wounds, on mucous membranes, and the bladder could be washed out with it.

Sir BERKELEY MOYNIHAN replied. He strongly favoured the circular amputation; if even one stitch was put in there was great danger of the supervention of gas gangrene. He agreed with what had been said concerning wounds which were opened up a second time. One patient died from tetanus after passive movement of the shoulder-joint after the original wound had been healed. The reopening of a healed wound seemed to revive infection which had become latent.

BRIGHTON AND SUSSEX MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on March 2nd, Dr. R. J. Ryle, in the absence of the President (Major A. H. Buck, R.A.M.C., T.), being in the chair.—Dr. M. Handfield-Jones showed a specimen of Chorion-Epithelioma of the Uterus following Hydatidiform Mole, and made some remarks

on these cases. Bleeding came on in this instance some two weeks after delivery of the mole, and panhysterectomy was at once performed. The patient, who was a healthy Jewess, was in good health some five months after the operation. No sign of any secondary growths was found. Dr. Handfield-Jones did not consider that hysterectomy should be performed at once in all cases of hydatidiform mole, but if bleeding recurred immediate panhysterectomy was indicated. —The specimen was discussed by Dr. Ryle, Mr. George Morgan, Dr. Heywood Smith, Dr. H. M. Galt, Dr. R. Sanderson, and Mr. H. N. Fletcher.—Dr. Handfield-Jones then read a paper on the Clinical Aspect of the Double Uterus in its Relation to Diagnosis and Treatment. The paper was based on the reports of 10 cases of this condition, eight of which had come under Dr. Handfield-Jones's personal observation. The cases were selected with a view to illustrate certain clinical points. Among them were: (1) A case in which septic infection of the second unimpregnated uterus occurred after delivery of a child from the other uterus; (2) a case in which twin fœtal sacs were removed from one uterus when the patient safely carried a single pregnancy in the second uterus to term; (3) a case of hæmatometra in a double uterus; (4) a case illustrating some obstruction to delivery by the unimpregnated portion of a double uterus; (5) a case in which the unimpregnated uterus was safely drawn up out of the way of the pregnant portion, and delivery was unobstructed; (6) a case in which death occurred from sepsis and hæmorrhage following an attempt to divide the septum separating the two uteri, both of which were pregnant, after the first uterus had been safely emptied; (7) a case in which pregnancy proceeded to full term in one half of a double uterus after the other uterus had been emptied by curettage in the early months; (8) a case in which a double vagina was discovered by the patient herself; and (9) a case in which pregnancy proceeded safely to term after the condition had been demonstrated by an exploratory laparotomy in the earlier months of pregnancy. —In the discussion which followed Dr. Ryle remarked on the difficulties of diagnosis, especially in cases in which profuse loss occurred in the early months of pregnancy.—Dr. Heywood Smith, Mr. Morgan, and Mr. Fletcher described a case which had been under their care in a child of 16 who at one time presented symptoms of intestinal obstruction. Recurrent pyometra had followed. The abscess discharged itself into the bladder on several occasions, and later into the abdominal wound.—Dr. Sanderson thought these cases were more frequent than is usually supposed. —Dr. E. R. Hunt spoke of the difficulty of diagnosis in a case which he had seen.—Dr. Handfield-Jones replied.

Reports and Analytical Records
FROM
THE LANCET LABORATORY.

PEPTONUM SICCUM, A. & H.

(ALLEN AND HANBURYS, 37, LOMBARD-STREET, LONDON, E.C.)

Peptonum siccum is prepared for bacteriological use as a nutrient, and according to our examination it is well adapted for the purpose. It follows, at all events, well-known preparations very satisfactorily. We found that it contained 92·00 per cent. of soluble matter consisting of albumoses and peptone, the former predominating according to the zinc sulphate test. The moisture amounted to 6·00 per cent., and the total mineral matter to 11·00 per cent. It is a well-prepared peptone which will usefully find wide application in the bacteriological laboratory.

TOLAMINE.

(BURROUGHS, WELLCOME, AND CO., SNOW HILL BUILDINGS, LONDON, E.C.)

Tolamine is the name, we think, happily given, of the new compound known as para-toluene-sodium-sulpho-chlor-amide, which has been shown to possess very remarkable germicidal properties. This true chemical combination presents a chlorine-nitrogen linkage in which the chlorine is a bactericidal potentiality. When brought into contact with proteins and cell nuclei containing basic groups it becomes a chlorinating agent, parting with its chlorine to the basic substances, so exerting its antiseptic action as called for. A solution of this substance does not precipitate or coagulate blood serum, and yet molecule for molecule the germicidal activity of tolamine is four times that of sodium hypochlorite. As is now well known, hypochlorous acid cannot be injected, as it coagulates the blood, while a solution of sodium hypochlorite causes hæmolysis. Tolamine is therefore admirably adapted for the antiseptic treatment of wounds. The first name given to this substance, chloramine, is not well chosen, and will lead to confusion, and besides is already used for the simple compound NH_2Cl. The word Tolamine is better.

VIROPHOS.

(C. J. HEWLETT AND SON, LIMITED, 35-42, CHARLOTTE-STREET, LONDON, E.C.)

We have confirmed the statements of the manufacturers in regard to the composition of this preparation. It contains milk casein, malt extractives, and glycerophosphates. We found that the preparation dissolves in cold water to the extent of 64·40 per cent. In this solution malt-sugar and glycerophosphates were found. The casein is not readily soluble in cold water. The moisture amounted to 9·50 per cent. and the mineral matter to 8·50 per cent. The preparation contains a pleasant flavouring. It is of high nutritive value, enhanced by the presence of assimilable phosphates.

FORMITROL PASTILLES.

(A. WANDER, LIMITED, 45, COWCROSS-STREET, LONDON, E.C.)

The administration of formaldehyde as a mouth and throat antiseptic in the form of lozenges has the drawback that after a time the formaldehyde strength diminishes owing to volatilisation. These pastilles are made with special attention to this disadvantage and the strength of the formaldehyde is maintained. Apart from the particular mode of manufacture which secures this, the pastille is closely wrapped in tinfoil to help further to prevent the escape of formaldehyde. Our examination showed that these precautions preserve the amount of formaldehyde added.

ESPRIT DE LIEGE.

(THE PEACE PILLOW COMPANY, 17, MANCHESTER-AVENUE, ALDERSGATE-STREET, LONDON, E.C.)

This preparation compares very favourably with "Eau de Cologne" as we knew it before the war. The perfumes are evidently carefully chosen, consisting of natural essential oils free from synthetics. On complete evaporation there is no unpleasant smelling residue left. The odour is quite refreshing, and the spirit employed is evidently pure, yielding no solid matter on evaporation. On ignition there was no mineral matter left. Esprit de Liége seems to us to be just as useful and attractive an article as the various preparations once so popular on the dressing-table.

SOUTHPORT INFIRMARY.—The annual meeting of the governors of this infirmary was held on Feb. 26th at the town-hall, when sympathetic references were made to the death of Sir George A. Pilkington, late consulting medical officer and chairman of the board of management of the infirmary.

THE LANCET.

LONDON: SATURDAY, MARCH 11, 1916.

Final Report of the Royal Commission on Venereal Diseases.

THE Final Report of the Royal Commission appointed in November, 1913, "to inquire into the prevalence of venereal diseases in the United Kingdom, their effects upon the health of the community, and the means by which those effects can be alleviated or prevented," was issued last week, with a full knowledge on the part of the Commissioners of the disadvantages of promulgating the report at a time when all public activities are centred upon meeting the manifold needs of the gigantic war in which the nation is engaged. The Commissioners, who were unanimous in signing the main report, were, however, of opinion that early issue of their views would be advantageous, as the conditions to the investigation of which the appointment of the Commission was due, while existing now, must continue on the conclusion of the war. Their course is one with which all must agree, for those conditions will require remedial action at the earliest opportunity if they are to be dealt with in any practical and comprehensive manner; indeed, we should have welcomed some advice from the Commissioners as to making use *now* of the instructional opportunities offered by the aggregation in camps of the larger part of our vigorous young manhood. Such an opportunity for giving impressive counsel to crowds who need it will not readily recur. This is not said in any spirit of criticism. For the Report[1] is a document of the first interest to the nation, and it should be read as a whole so as properly to understand the comparative value of the general conclusions and of the evidence upon which they are based. We publish in another column the summary of recommendations and the general conclusions in full, many of which, in our opinion, must have been largely foreseen by the medical profession. That no system of regulation would be favourably mentioned was certain, and that no mode of notification of venereal disease would be recommended was thought probable, as medical opinion is still divided on this point. We think that notification will probably follow on the better instruction of the public in the sequelæ of venereal diseases. The difficulty of determining the real prevalence of these diseases in the country, which it was felt would be experienced by the Commissioners, made it appear likely that some form of confidential registration of causes of death would be suggested, as well as arrangements for the compilation of accurate statistics. Perhaps this authoritative report may lead to the reform in our national ways of taking stock by figures, a reform which only last week we suggested was very necessary. In this connexion the third recommendation of the Commissioners is exactly to the point.

The first section of the Report summarises briefly the previous action taken by the State in this country to control venereal diseases. The story of the Contagious Diseases Acts is set out, and the fact of their repeal 30 years ago is briefly noted, the Commissioners being precluded by the terms of reference from considering the policy of regulation. They seem to have interpreted this limitation as enjoining them not to mention the subject of prostitution, and this gap in their advice to the State will have later to be filled. They place on record, however, their view based on evidence given by experts at home and abroad, that no advantage would accrue from a return to the system instituted under the Contagious Diseases Acts, while they note in support of this the great improvement as regards venereal disease in the navy and army which has taken place since the repeal of those Acts. Except in the case of the navy and army there are at present no means of arriving at an accurate estimate of the present prevalence and distribution of venereal diseases. The Commissioners come to the general conclusion, as regards prevalence, that the incidence of both syphilis and gonorrhœa is much lower in rural than in urban areas, and as regards the great cities this may be taken as absolutely proven without actual acquiescence in the tentative view that at least 10 per cent. of the population of such cities are affected. We find the assumption of so great a prevalence hardly justified in face of the widespread belief of the medical profession that the incidence of these diseases in all classes of the population has become definitely lighter. The statistical part of the report is the one which will give the least satisfaction, and many will feel that, apart from certain special inquiries, not much is here set down that is of paramount value. We make exception in favour of the investigations of Dr. PAUL FILDES into the prevalence of syphilis among the apparently healthy adult inhabitants of the East End of London; of Sir JOHN COLLIE into the manifestations of syphilis among 2274 persons referred for medical report by large employers of labour; of the Lister Institute into the occurrence of syphilis among persons admitted to certain asylums; and of Dr. F. W. MOTT and Mr. N. BISHOP HARMAN, to which we refer below.

It is only in comparatively recent years that the full effects of venereal diseases have been recognised, and in the third section of the Report these

[1] Royal Commission on Venereal Diseases. Final Report of the Commissioners. (Appendix, Minutes of Evidence, &c., to Final Report of the Commissioners, one vol., is printed separately as Cd. 8190.) Cd. 8189. 1916. Price 1s. 11d. To be purchased either directly or through any bookseller, from Wyman and Sons, Limited, 29, Breams-buildings, Fetter-lane, E.C., and 28, Abingdon-street, S.W., and 54, St. Mary-street, Cardiff; or H.M. Stationery Office (Scottish Branch), 23, Forth-street, Edinburgh; or E. Ponsonby, Limited, 116, Grafton-street, Dublin; or from the Agencies in the British Colonies and Dependencies, the United States of America and other foreign countries of T. Fisher Unwin, Limited, London.

effects are discussed from the clinical standpoint. The little essay on syphilis thus furnished, describing its early and late results, the danger of spirochætal infection of the walls of the arteries, and the possible production of deadly affections of the brain and spinal cord, makes terrible reading, and reminds us over and over again how much wider our knowledge of the subject has become in recent years. And it is this fact which renders an estimation of the actual prevalence of syphilis particularly difficult, for while it is the widespread impression of medical men that the disease is not so rife as it was even 20 years ago, they must recognise as syphilitic phenomena conditions to which wholly different origins were formerly given. Upon gonorrhœa the pronouncement of the Commissioners is no less impressive than it is upon syphilis, and in insisting upon the widespread mischief which may follow in its train for both sexes, the particularly sad result of sterility in the female is noted in the following comment:—

> Gonorrhœa is said to be the commonest cause both of absolute and relative sterility in women, probably 50 per cent. of all causes. It prevents conception in the early stages by hindering the living germs on which impregnation depends from reaching the uterus, and also by destroying their vitality. Impregnation would therefore appear to be impossible during an acute attack of gonorrhœa, and although pregnancy may possibly occur during the subacute stage it not infrequently ends in miscarriage owing to the inflammation from the vagina creeping into the lower zone of the uterus. Should the child be carried to term, the risk of infection of the tubes and ovaries is greatly increased. This leads to such alteration in the structure of these essential organs as to cause the well-known "one child fertility." When complicated by streptococcic and staphylococcic infection gonorrhœa may lead to puerperal sepsis and death.

We agree with the Commissioners that knowledge of these facts should cause both the medical profession and the public to take a far more serious view of gonorrhœa than has hitherto been adopted. For this and other reasons we wish for the Report a wide circulation among the public. It will help greatly to obtain universal coöperation in any remedial measures which may be designed to meet the conditions produced by venereal diseases that the public should be made aware of the influence of syphilis in producing hereditary and congenital disability of a terrible sort. This is illustrated by diagrams contributed by Dr. MOTT on untreated or inadequately treated syphilis, which prove the disastrous results of the infection of a parent. On an adjoining page in the report will be found a diagram furnished by Mr. BISHOP HARMAN showing the proportions of blindness in children due to venereal disease, and the lesson is enforced by a statement of the same observer that of 1100 children in London blind schools 31·2 per cent. of cases were certainly, and in addition 2·8 per cent. were probably, due to syphilis.

Under the head of the treatment of syphilis, mercurial and arsenical courses are discussed, and the summaries of the reports regarding the drugs used in this country as substitutes for the German products of salvarsan and neosalvarsan show these new substances to be very satisfactory. A part of the evidence to this effect has been already published in our columns, and goes to indicate that kharsivan and galyl are of the greatest possible value. Wisely the Commissioners say, having regard to the fact that in all cases successful treatment must largely depend upon the assistance of the patient, that instructions should be given in the clearest possible manner as to the contagious nature of syphilis, as to the duration of the infection, and as to the necessity for treatment being by a doctor, not by a quack, and being persevered with at medical discretion. For the first time we think the position of the married woman is definitely recognised, as in the report it is suggested that no one who has, or has had, syphilis should marry without medical permission. A similar instruction is recommended in cases of gonorrhœa, and the special danger of communicating the disease to the wife is dwelt upon, while the Commissioners recommend that venereal disease should be a ground for nullity of marriage. We agree wholly with this opinion on a sad situation, and also with the statement in the ninth recommendation that institutional treatment for venereal disease should as far as possible be provided at general hospitals. Indeed, we look forward to the day when the general hospitals, in the presence of an enlightened public, will wage systematic war on venereal disease through the medium of highly instructed staffs, both senior and junior. When we all know more, the terrors of venereal disease—real, as they are, beyond description—will be met squarely and dissipated promptly. We read this optimistic forecast into a document of studied moderation.

The History of the Human Body.

EVERYONE is familiar with the remarkable manner in which the mammalian body has been modified in those animal forms which live in water. A study of the structural adaptations in the bodies of whales and their allies fascinated HUNTER, KNOX, GOODSIR, TURNER, STRUTHERS, and FLOWER. The fact that a life in trees—an arboreal existence—has an equally profound effect on the structure of the body has escaped the attention of anatomists, at least, has never been properly studied or appreciated, notwithstanding the fact that all serious students are agreed that man is the descendant of an arboreal stock. In a series of masterly lectures in the theatre of the Royal College of Surgeons of England, which we are glad to know were attended by audiences commensurate with their merit and importance, Professor F. WOOD JONES analysed the various features of the body which must be attributed to an arboreal lineage. Why is it, he asked, that the arm and hand of man and of man's congeners retain so many primitive structural features—features which we seek for vainly in the higher orders of mammals but find paralleled in the very lowest mammals and in reptiles and in amphibia? The answer is to be found by studying

the various functional phases in the evolution of limbs. In the lowest land-living forms of vertebrate animals limbs are purely propelling organs; they are incapable of sustained support of the body. When the limbs become capable of sustained support, as in mammals with hoofs and claws, they become profoundly altered in structure and lose all their primitive features. In climbers, however, the primitive features are retained, for in them the limbs still serve as propelling rather than as supporting organs. Professor WOOD JONES maintained that the climbing stock—the Primates—must have been evolved at the very dawn of the mammalian type of animal, otherwise these primitive features of the limbs could not have been retained.

Even more remarkable than the results were the fresh methods which the lecturer brought to bear on the evolutionary problems of man's body. A study of structure is likely to prove fruitless unless the anatomist has seen the part alive and at work; an anatomist must be an even keener observer of the living than of the dead if he would make true progress. He must be a psychologist and correlate structure of brain with the instincts and habits of the living individual. All those facts Professor WOOD JONES realised, and it is the happy combination of a naturalist in the jungle and in the Zoological Gardens, of an anatomist in the dissecting room, and of a close observer of human and animal ways which has made him so successful as an exponent of our knowledge of the past of man. He laid stress on the adaptation of the hand and foot for grasping purposes in climbing animals. He showed that it was because the hand could grasp that it was able to replace functions which are performed by the jaws and teeth of other mammals; the retrogression of the jaws, the crowding of the teeth, the coming forwards of the eyes, and binocular vision are direct results of an exchange of function from jaws to hand. The climbing and grasping habit has led directly to the carrying and nursing of the young. The climbing habit brought an alteration of the uterus and the production of only a single baby at birth, for an actively climbing mother cannot protect and carry more. In terrestrial mammals smell is the dominant sense; the brain is built up round the olfactory centres; in tree-climbers scent glands disappear, the sense of smell loses its predominant position, the eye, the ear, and touch become the master-senses; the parts of the brain connected with these sense organs undergo a corresponding development; we can see the human brain being built up stage by stage as the various primate forms are traced towards the human end of the phylum. Psychology and the anatomy of the brain go hand in hand. In 1833 Sir CHARLES BELL gave a series of lectures in the theatre of the Royal College of Surgeons of England—the year in which he issued his famous Bridgwater treatise, "The Hand: its Mechanism and Vital Endowments as Evidence of Design." How are we to reconcile his ecstatic and yet truthful conception of the human hand with Professor WOOD JONES'S statement that it is a primitive structure? It is strange that the man who did more than anyone to open up the path which led to a rational study of the human brain did not realise—a fact which was emphasised in these lectures—that the marvellous mechanism which controls and regulates the human hand lies not in the hand itself but in the brain which guides it. It is not the hand but the brain that makes the man. Who has not seen big clumsy-looking hands used as marvellous instruments of precision?

One statement by the lecturer is worthy of particular record. He said that he had no apology to offer for making the "arboreal habit" the subject of his lectures, as he considered it the duty of every man, whose services were not directly demanded by the State, to pursue his work and his research with more than customary assiduity; it was the only way to repay those who were sacrificing their lives on our behalf. He reminded his hearers that HARVEY was busy with his scientific problems as he sheltered with the princes behind a hedge at Edgehill; that the Royal Society was founded in the turmoil of a civil war; and that COOK was opening up a new empire in entire ignorance that our American cousins were breaking away from us.

Annotations.

"Ne quid nimis."

THE POSITION OF POTABLE SPIRITS.

THE action of the Government in appropriating the output of alcohol at the patent-still distilleries will recall the old controversy as to whether such spirit was entitled to be called whisky. The Royal Commission on Whisky reported upon the subject in 1909, and the Commissioners refused to believe that there was any importance attached to the question whether whisky is pot- or patent-still; they held that the value of whisky in the treatment of disease depends essentially on the ethylic alcohol. They were therefore unable to recommend that the use of the word "whisky" should be restricted to spirit manufactured by the pot-still process. We can well understand that for munition purposes pure and strong spirit is required, and that is exactly what the pot-still spirit is not. In other words, the patent still is a powerful rectifying machine, while pot-still spirit carries with it certain by-products of fermentation and distillation which impart to the spirit a characteristic and pronounced flavour. It remains to be seen whether this action of the Government will mean that the supply of whisky to the public in the future will consist exclusively of pot-still spirit, since apparently this is not available for munition purposes. Those whisky consumers who are in favour of blends, will possibly have to confine their patronage to the pot-still spirit unless they abandon this stimulant altogether. The price of the commodity will be sure to advance as the stocks of all-malt whisky will be

relatively small. The situation is of interest in regard to dietetic considerations, because of the contention, on the one hand, that blended spirit, a mixture of pot- and patent-still, is less toxic than all-malt pot-still, while, on the other hand, pot-still whisky alone is not suitable for drinking until it is well matured. New or raw pot-still whisky has, indeed, a repulsive flavour, and until it is matured evidently contains substances which, apart from alcohol, are toxic. If the Government decide to commandeer the whole of the patent stills in the country, then the supply of gin will largely disappear, since in many instances the spirit used for making gin is patent-still. Rum, on the other hand, falls into the category of pot-still spirit, and there are plentiful supplies from our colonies, but it is difficult to imagine rum ever replacing whisky, brandy, or gin in the manner in which these spirits are usually employed. But the price of rum will advance with the demand for alcohol, and the same will happen to Cognac brandy, which, again, is a pot-still spirit. While the supply of potable spirits will be limited to the pot-still kinds, there is a possibility of the prices reaching figures which will be prohibitive at least to a very large section of the community. The general effect of this position on the public health should afford an interesting study.

A THEORY OF ANÆSTHESIA.

WHAT is the essential cause of the phenomenon of anæsthesia? That for some reason or other the higher centres of the brain are out of action whilst the vital centres situated in the medulla oblongata continue to work we know to be the condition permitting life while obliterating consciousness, but what that reason is we are still seeking to find out. For long it was held that the reason was to be found in the altered metabolism of deficient oxygenation; that anæsthesia was, in fact, an expression of physiological asphyxia. This we know to be a faulty explanation, for it has been clearly shown that anæsthesia can coexist with efficient oxygenation of the nerve tissues. Now the theory has been put forward that anæsthesia is the product of acidity of the blood. The thesis is expounded and developed in the most interesting manner by Dr. G. W. Crile in an article in the *Southern Surgical and Gynecological Transactions* (vol. xxvii.). The writer shows that the H-ion concentration of the blood—its acidity—is increased by inhalation anæsthetics; and that ether and nitrous oxide produce an acidity of the blood which is apparently proportional to the depth of anæsthesia. Moreover, he shows that under ether the increase of acidity is more gradual than under nitrous oxide, corresponding with the fact that nitrous oxide produces anæsthesia more quickly than does ether. Further, Dr. Crile claims that animals "killed" by anæsthetics are revived by the use of adrenalin which is alkaline. His hypothesis which supposes acidity to be the cause of anæsthesia and unconsciousness harmonises many facts. It explains how asphyxia, overwhelming emotion, and excessive muscular exertion, which all produce acidity, may produce unconsciousness. It may explain quick death from chloroform and may show why unconsciousness so commonly immediately precedes death. Death itself may be the extreme expression of acidity according to Dr. Crile. The opposed attitudes of the higher and lower cerebral centres during anæsthesia are explained in the following way according to the hypothesis. During the inhalation of an anæsthetic there is an increase in the rapidity and force of the respiration. The respiratory centre has been evidently evolved to act with increased vigour in proportion to the increase in acidity, whereas the centres governing the voluntary muscles are inhibited. Consequently the acidity cannot be increased by muscular exertion, whilst at the same time it is being counteracted by increased respiratory action whereby carbon dioxide is eliminated and oxygen supplied. Without this life-saving regulation animals under stress would inevitably commit suicide, says Dr. Crile, and the phenomenon of anæsthesia—the coincident existence of unconsciousness and life—is due to this antithetic action of the cortex and the medulla. Against this postulate that acidity causes anæsthesia stands the fact that infusion of alkali does not overcome anæsthesia. Nevertheless this new idea of anæsthesia is strongly founded, if the experimental facts on which Dr. Crile bases it are borne out by further observations. Moreover, every study is welcome which tends to throw light on those obscure, but distressing and not very uncommon, cases in which uncontrollable vomiting, accompanied by acidosis and delirium, and ending in death with disintegration of liver cells, follows the use of inhalation anæsthesia.

A NEW METHOD OF TREATMENT IN ASPHYXIA NEONATORUM.

RESTORATION to life of an infant born in a condition of apparent death, which would in all probability become real without the prompt, skilful, and patient aid of the medical attendant or midwife, is of peculiar importance at the present time when war is exterminating so many lives. We think, therefore, that the new method of resuscitation lately described by Dr. Serafino Marmo in a recent issue of the *Rassegna d'Ostetrica e Ginecologia* (Naples, Piazza Trinità Maggiore, 13) is of special interest. The operator is seated and holds the infant suspended in such a manner that the hollows of the axilla fit into the space left between the thumb and first finger. The thumbs encircling the shoulders from behind are extended forwards and upwards so that their radial margins and corresponding metacarpus support the head slightly, which otherwise would tend to dangle. The hollow of the hand and the four fingers turned forwards are placed lightly on the lateral and anterior regions of the fœtal thorax, which is in this way completely supported. This constitutes the *inspiratory position*. The operator now spreads out his own arms so as to draw apart the shoulders of the fœtus, which he raises quickly a few feet and then imparts to it a sharp downward vertical movement as if to throw it to the ground and suddenly arresting its descent. The air enters the rima glottidis with a characteristic hiss. These two movements occupy no more than two or three seconds and constitute the *mechanical and passive inspiration*. Then with the hollow of the hands and with the four fingers which surround the thorax, and which may be spread out if necessary, the operator exerts a cautious concentric pressure without disturbing the position of the fœtus. He will experience under his hands a sensation of

crepitus, which indicates the exit of air, and this movement constitutes the *mechanical and passive expiration*. These movements are practised 25 to 30 times a minute, and should be continued for a longer or shorter time according to circumstances. At intervals it may be necessary to put the fœtus in a warm bath, although the movements may be very well carried out with the fœtus wrapped from the axilla downwards in warm flannel which can be changed from time to time. By this method expansion of the thoracic wall in all its diameters takes place owing to the movements performed and also by the weight of the fœtus acting on the sternum, clavicle, and ribs, and by the depression of the diaphragm caused by the shock imparted to the abdominal viscera. Other useful effects are also obtained, such as traction on the larynx and trachea, with probable elevation of the epiglottis, widening of the rima glottidis, and depression of the lower jaw. In fact, these movements unite in themselves the manœuvres of Silvester and Pacini devised to expand the thorax by elevating and widening the shoulders. Here, however, the fœtus is in a lying posture, whereas by the author's method it is suspended, and this is an advantage. Moreover, it seems that these movements are more effectual than Schultze's method, which induces inspiration solely by the position in which the fœtus is held, since the direct and energetic impulse given to it and the firmer hold on the shoulders cannot but have a more marked result. The second movement advocated by Dr. Marmo imitates Silvester's method so useful in adults, but the effect is obtained with greater simplicity and efficacy without the operator having to change the position either of his own hands or of the fœtus. The method has a further advantage over that of Schultze, not only because it can be carried out without increasing the chilling of the fœtus, but principally because the head, well supported by the thumb and metacarpus, is not subjected to the harmful tossing and nodding inseparable from the German method, since increase in the intracranial pressure may cause arrest of the bulbar cardiac and respiratory centres. Lastly, Dr. Marmo claims that a real and not illusory entrance of air into the lungs takes place, as he has been able to demonstrate on the bodies of fœtuses born some days previously, so that this abundant and continuous aeration of the alveolar mucous membrane cannot fail in modifying the venosity of the blood and in stimulating the residuum of vitality of the nerve-endings and of the bulbar inspiratory centres, and in establishing the rhythm of the reflexes on which extra-uterine life depends.

AN ANCIENT GREEK INSCRIPTION.

IN the "Monumenti Antichi" (1915) published by the Italian Academy of the Lincei," is a particularly well-preserved and lengthy Greek inscription concerning an ancient physician of Asia Minor. The text contains quite 50 lines, all but the very last of these complete, and is edited by Signori Paribeni and Romanelli, among a long series of inscriptions discovered during a journey in Anatolia. The record consists of a copy of two honorary decrees bestowed upon a certain Asclepiades, son of Myron, originally hailing from the city of Perga. The first decree is a panegyric of him by the Perga citizens, and is doubtless a copy of the decree graven and erected in that town. The second decree, which is longer in its engrossment and more eulogistic in its terms, was promulgated by a city named Seleucia, but as there were more than one of this name in antiquity it is not certain which Seleucia is referred to. The decrees really register the results of the deliberations of the two municipal councils when deciding to award honours to Asclepiades. Perga appears to have satisfied its representatives that they were sufficiently recompensing their municipal medical man for his meritorious services by setting up in imperishable stone the decree in his honour. Seleucia conferred citizenship upon him and presented him with a golden crown[1] in the Gymnasium. This Asclepiades, son of Myron, is not known to us from any ancient record. It was a name commonly assumed by physicians, probably as indicative of talent in the healing art, and thus savours somewhat of the charlatan. The registering of two honorary decrees on one memorial stele seems to indicate that it was engraved by private initiative, because the city of Seleucia would not have recapitulated the Perga panegyric. It may be that Asclepiades, son of Myron, went to some third city, and there, as proof of his skill, erected the stele now found, setting forth previous rewards granted to him for his medical merits at two other towns. The inscription will be one of the most interesting for the history of lapidary memorials of ancient medicine. An excellent photogravure of the stone is provided to assist students studying the text. It is quite equal in importance to the inscription of the Agoni Medici of Ephesus, published by Professor Keil in the *Jahreshefte* of 1905, p. 128.

APPENDICITIS AS A SEQUEL OF TONSILLITIS.

THE occurrence of appendicitis as a sequel of tonsillitis has not received much attention and is unmentioned in most text-books. The importance of the tonsil as the port of entry of many infections and a source of disease in distant organs has been established in recent years. General septicæmia, acute rheumatism, chorea, endocarditis, pneumonia, pleurisy, meningitis, nephritis, orchitis, thyroiditis, and cholecystitis have been traced to tonsillar infection. The similarity of lymphatic structure in the tonsil and the appendix suggests liability to similar infections. Professor H. D. Anderson, of Toronto, has published in the *American Journal of Medical Sciences* an important paper on appendicitis as a sequel of tonsillitis. His attention to the subject was first directed by the case of a student, aged 19 years, who became ill with follicular tonsillitis on Jan. 10th. 1907. A culture from the throat showed the staphylococcus pyogenes aureus. On the 13th the throat had greatly improved, but the patient suffered from epigastric pain, gastric distension, and belching of gas. There was some tenderness in the epigastric and left hypochondriac regions. The bowels had been acting freely. The pain disappeared in a short time and for two days the patient appeared to be much better, the throat cleared up, and the temperature became normal. On the 15th the pain and gastric distension with retching recurred and he was admitted to hospital. The epigastric region was distended, but there was no pain, tenderness, or rigidity elsewhere. During the night general abdominal pain, tenderness, and distension developed, and the temperature rose to 99·2° F., and the pulse to 140. An operation was performed

[1] Another instance of a gold crown being presented to a medical man is that of Artemedoros in Ins. Grae. XII., No. 719.

and general peritonitis and a gangrenous appendix were found. He died next day. Other observers have reported cases in which the tonsillitis preceded the appendicitis by only a few hours, and it has been noted that rheumatism may develop coincidently with or follow appendicitis. In the preceding case the remarkable feature was the latency of the symptoms referable to the appendix. Fever and rise of pulse-rate were absent until the sudden development of the fulminating symptoms. The epigastric pain and tenderness seemed to be due to gastric distension. It is possible that they were due to generalisation of the infection from the tonsil with secondary involvement of the appendix. In the *Journal of Infectious Diseases* for March, 1915, E. C. Rosenow has published an article on the Bacteriology of Appendicitis and its Production by Intravenous Injections of Streptococci and Colon Bacilli. He has shown that multiple hæmatogenous infection of the appendix, duodenum, small intestine, and stomach may result. In 1893 Dr. T. N. Kelynack, in his book on "The Pathology of the Vermiform Appendix," directed attention to the relation of tonsillitis to appendicitis. Subsequently the subject was taken up by German investigators. In 1901 Adrian produced appendicitis in rabbits by intravenous injection of bacteria. He regarded the appendix as a point of election for the localisation of infections. In THE LANCET Dr. F. J. Poynton and Dr. A. Paine have published important contributions to the subject. They showed that in rabbits the micrococcus, which they regard as the exciting cause of acute rheumatism, can produce a local lesion in the appendix by direct blood infection.[1] They subsequently reported a case which "seems to prove almost conclusively that appendicitis may be a streptococcal invasion through the blood-stream from a follicular tonsillitis."[2]

DISEASE AMONG WORKERS IN HEMP CULTIVATION.

Dr. G. Slaviero draws attention in a recent issue of *Il Morgagni* (Part I., Nov. 30th, 1915) to the evil effects attributable to the process of maceration to which the dried hemp plants have to be subjected in order to prepare this commodity for manufacture. For this operation a kind of rectangular basin is used about 1½ metres in depth, the dried bundles being placed in the water and fixed there by various appliances. During the maceration the surface of the water is covered with putrefying detritus, becomes turbid and assumes a dirty-green colour, has a bitter salt taste, and exhales an acrid, pungent, and nauseating odour which poisons the air. The macerated bundles have to be removed by workers immersed, sometimes up to the waist, in a crouching position, and wet through in all parts of the body except their backs. The bundles are then exposed to dry in the sun, when they are ready for spinning. This process, in use in Italy at the present day, is eminently anti-hygienic, not only on account of the nauseating surroundings but in a greater degree from the conditions under which the work is performed, with the limbs bathed in the mud and with water up to the waist, resulting in such interference with movement and a useless expenditure of energy rendered necessary by the constrained position. Hence it is very common to find among the workers a large number of cases of lumbago, arthritis of the right shoulder and radiocarpal joints, and rheumatic neuritis, while pharyngitis and tonsillitis are very common. Among women, too, the conditions seem to induce disturbance of the sexual functions and to favour prolapse of the uterus. After the bundles have received their final drying they are carried away, and the dust and fine particles which fall on the uncovered parts of the body, particularly the neck, chest, and arms, produce a kind of pruritus which easily becomes converted by scratching into an infective dermatitis in which staphylococcal elements abound. Lesions are also caused by the irritating putrefactive material brought into contact with the skin through the water during the process of maceration. If it were possible to carry out the removal of the bundles after maceration by mechanical appliance, the problem of disease connected with the manufacture of hemp would be in a large measure solved. However, Dr. Slaviero found that the majority of agriculturists interrogated by him were very sceptical about mechanical removal of the hemp from the macerating basins, and were of opinion that human labour was, and always would be, indispensable for the reason that it was impossible for the uniform work of a machine to take the place of a kind of labour, entirely *sui generis*, in respect to the degree of maceration, the conditions of the macerating basin, and of each particular bundle of hemp.

[1] THE LANCET, Oct. 28th, 1911, p. 1189.
[2] THE LANCET, August 17th, 1912, p. 439.

PYLORIC STENOSIS AND GASTRIC MOTILITY.

THE pathogeny of congenital hypertrophic stenosis in infants is still uncertain, but some recent experiments performed in Dr. Carlson's laboratories[1] offer a clue. Briefly, it is suggested that the excessive contraction of the pylorus may be an expression of a general hypermotility of the entire stomach. In some experiments the pylorus was artificially partially stenosed. Dogs were used for the purpose, the gastric movements being recorded by a manometer connected with a swallowed rubber balloon. In both animals used there was some delay in emptying. There was, however, very definite hypermotility and hypertonicity, and, curiously enough, this was noted not only in the digesting stomach but also in the starved stomach, suggesting that the resulting motor changes are more fundamental and permanent. There is, too, in these instances no parallel between increased motility and hunger, such as occurs in the normal person who when hungry shows more vigorous gastric movements. Therefore it is likely that not only the motor but also the sensory nervous mechanism are altered by the presence of the stenosis. Partial pyloric stenosis induces neuromuscular hyperactivity, independent of the presence of food in the stomach. Similar methods of observation were carried out also on two babies, one with congenital hypertrophic stenosis, the other with pyloric spasm. In the former there was well-marked increase in the strength and duration of the gastric contractions; in the latter there was noted similar hypermotility, assuming at times the degree of vigorous and prolonged tetanic contractions such as have not hitherto been observed, except in the case of adults after prolonged starvation. In infancy there is a greater tendency to pyloric hyperactivity, and the pathological conditions clinically familiar may be due to excess of this condition.

[1] American Journal of Physiology, 1916, vol. xxxix., pp. 303-310.

THE ANTISEPTIC ACTION OF SUBSTANCES OF THE CHLORAMINE GROUP.

A PAPER on the Antiseptic Action of Substances of the Chloramine Group was communicated at a meeting of the Royal Society on March 2nd by J. B. Cohen, F.R.S., H. D. Dakin, M. Daufresne, and J. Kenyon. They found that the probability that the formation from proteins of substances containing halogen was an intermediate agent in the germicidal action of hypochlorites made it desirable to investigate systematically a number of substances containing the (NCl) group. Among the substances investigated the most promising were the group of sulphochloramides first prepared by Chattaway. The main results of this investigation were as follows: 1. Almost all the substances examined containing the (NCl) group possessed very strong germicidal action. 2. The presence in the molecule of more than one (NCl) group did not confer any marked increase in germicidal power. 3. The germicidal action of many of these chloramine compounds was, molecule for molecule, greater than that of sodium hypochlorite. 4. Substitution in the nucleus of aromatic chloramines by Cl, Br, I, CH_3, C_2H_5 or NO_2, groups did not lead to any very great increase in germicidal activity. More commonly there was a moderate diminution. 5. The chloramine derivatives of naphthalene and other dicyclic compounds of sulphochloramide type closely resembled simpler aromatic chloramines in germicidal action. 6. The few analogous bromine compounds examined showed a slightly lower germicidal action than the corresponding chloramines, but sodium sulphobromamides are much more active than sodium hypobromite. 7. Derivatives of proteins prepared by the action of sodium hypochlorite and containing (NCl) groups were strongly germicidal. Blood serum inhibited their germicidal action to much the same extent as it did with sodium hypochlorite or the aromatic chloramines. Among the products mentioned para-toluene-sodium-sulphochloramide was selected as being on the whole most suitable for practical use. The authors state that it is easily and cheaply made; it is relatively non-irritating to wounds; it is non-toxic and very soluble in water, and may be kept unchanged both in the solid state and in solution for a long period.

WE regret to announce the death of Dr. Theodore Thomson, C.M.G., late assistant medical officer to the Local Government Board, which occurred at Oxford on March 6th in his fifty-eighth year.

WE also regret to announce the sudden death of Dr. Drummond Maxwell, assistant obstetric physician to the London Hospital, which occurred on Tuesday last, to the great grief of his colleagues and numerous friends.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—A Comitia was held on March 7th, Dr. Frederick Taylor, the President, being in the chair. A letter was received from the Council of the Royal Society with reference to the establishment of a Conjoint Board of Scientific Societies for the purpose of promoting the coöperation of those interested in pure or applied science, and asking the College to nominate two representatives to meet the council of the Royal Society at a conference to be called at an early date. It was resolved that the President should be asked to nominate two Fellows to act as Representatives of the College. The greater part of the time was occupied with the discussion of a subject which was declared to be *secreta Collegii*.

THE ROYAL COMMISSION ON VENEREAL DISEASES.

THE Final Report of the Commissioners appointed to inquire into the prevalence of venereal diseases in the United Kingdom, the effects of such diseases upon the common health, and the means by which those effects can be alleviated or prevented, was issued last week, and receives general comment in a leading article in our columns. The document is a closely written one and cannot be abstracted without much detraction from its value. Members of the medical profession are strongly advised to obtain the report for consideration at their leisure. In the meantime we publish in full below a summary of the recommendations and the general conclusions.

Summary of Recommendations.

1. Arrangements should be made for the confidential registration of the causes of death. The proposals of the Registrar-General are commended for consideration.

2. The Notification of Births Act, 1907, should be made universally operative,[1] and in the notification of stillbirths a shorter period of pregnancy than 28 weeks should be taken into account.

3. The Local Government Board should devise a uniform system of records of sickness in hospitals and Poor-law establishments with the object of securing accurate statistical information as regards the prevalence of disease among persons who receive institutional treatment.

4. Statistics should be kept of the number of patients for whom salvarsan or its substitutes is provided at the public expense.

5. All institutions which undertake, with the assistance of grants from the Exchequer, the diagnosis or treatment of venereal diseases should keep and render available accurate aggregate statistics regarding these diseases.

6. Extended facilities should be made available for the diagnosis of venereal diseases by laboratory methods. The organisation of this service should be entrusted to the larger local authorities (county councils and county borough councils), and should form a part of the provision of laboratory facilities having for their object the prevention, diagnosis, and treatment of diseases in general.

In any schemes framed by local authorities the fullest use should be made of the laboratory facilities at universities and hospitals.

The cost of this service should be met as to 75 per cent. from Imperial funds and as to 25 per cent. from local rates.

7. Measures should be taken to render the best modern treatment of venereal diseases readily available for the whole community, and the arrangements should be such that persons affected by these diseases will have no hesitation in taking advantage of the facilities for treatment which are afforded.

8. The organisation of these means of treatment should be in the hands of the larger local authorities (the councils of counties and county boroughs). These authorities should, subject to the approval of the Local Government Board, organise and carry into effect definite schemes for dealing with the diseases.

9. Institutional treatment should, as far as possible, be provided at general hospitals, and local authorities should, as the first step in the preparation of their schemes, approach the general hospitals in their areas with a view to making arrangements for treatment.

10. Treatment at any institution included in a local authority's scheme should be free to all. There should be no refusal to treat a patient who is unwilling to go to his own doctor.

11. The treatment afforded at any institution should not be restricted to persons resident in a particular area.

12. Special arrangements, such as evening clinics, should be made for the treatment of out-patients at hours convenient to the working classes.

13. Subject to proper safeguards, local authorities should be empowered to supply salvarsan or its substitutes gratuitously.

14. The obligation should be impressed upon all doctors who treat syphilis and gonorrhœa in institutions or privately to hand cards of instruction and warning to their patients. These cards should be in some such form as those given in the report, and should be provided at the public expense.

15. Medical students and practitioners should have access, for educational purposes, to the treatment of venereal

[1] Since this recommendation was approved the Notification of Births (Extension) Act, 1915, has been passed.

diseases at any institution dealing with these diseases as part of a local authority's scheme.

16. In any case in which a local authority refuse to make provision for treatment the Local Government Board should be empowered to make arrangements directly with hospital authorities.

17. The expenditure on schemes of treatment should be assisted by grants from Imperial funds. It is suggested that these grants should be equivalent to 75 per cent. of the expenditure incurred by local authorities. The Local Government Board should be responsible for the distribution of these grants, and should lay down the conditions subject to which the grants are to be paid.

18. The provisions of Section 22 of the Poor-Law Amendment Act, 1867, should be available to secure the detention, where necessary, of Poor-Law patients suffering from venereal diseases. If necessary, the applicability of this section to the case of venereal diseases should be made clear by legislation.

19. Steps should be taken, wherever necessary, to render the wards in Poor-law institutions set apart for venereal cases suitable and cheerful. Facilities for the best modern treatment should be provided in these institutions.

20. The means for the diagnosis and treatment of venereal diseases by modern methods should be made available in prisons. Where the medical officer of a prison considers that a local examination of a woman is necessary it should be made by a woman doctor.

21. Arrangements should be made through Discharged Prisoners' Aid Associations or similar bodies for some person to keep in touch with discharged prisoners suffering from venereal disease, with a view to securing that they avail themselves of treatment and continue the treatment as long as may be necessary.

22. Men in the Navy or Army suffering from venereal disease whose period of service has not expired should be detained until they are pronounced not infectious. If necessary, additional hospital accommodation should be provided. In cases where infectious men are entitled to claim their discharge, they should be encouraged to continue their treatment and, where this treatment cannot be provided at a Service hospital, arrangements should be made for the treatment to be continued at a hospital or clinic working in connexion with a local authority's scheme.

23. No system of notification of venereal diseases should be put in force at the present time. When experience has been gained of the operation of improved facilities for diagnosis and treatment the question of notification should be further considered.

24. The recommendations of the Select Committee on Patent Medicines regarding the prohibition of all advertisements of remedies for venereal diseases should be put into force.

25. The law should be amended to provide that a communication made *bonâ fide* by a medical practitioner to a parent, guardian, or other person directly interested in the welfare of a woman, or man, and with the object of preventing or delaying a marriage with a person who is in an infectious condition from venereal disease, shall be a privileged communication.

26. Statutory recognition should be given to the principle that infectious venereal disease constitutes an incapacity for marriage. The process should be made available for all persons, however poor.

If under the existing law the effect of a decree of nullity is to render the children illegitimate, the new statutory enactment should provide that the disabilities attaching to such a condition should not follow.

27. Whether by means of compulsory attendance at a course of instruction in venereal diseases or otherwise it should be rendered certain that every medical student has adequate practical instruction in these diseases. Every medical student should attend a course of practical instruction in skin diseases.

28. Questions relating to syphilis and gonorrhœa should be systematically set in medical and surgical examinations, so that the knowledge acquired in these diseases by candidates for examination may be tested.

29. More careful instruction should be provided in regard to moral conduct as bearing upon sexual relations throughout all types and grades of education. Such instruction should be based on moral principles and spiritual considerations, and should not be based only on the physical consequences of immoral conduct.

30. In elementary schools detailed instruction in class on sexual matters should not be undertaken.

31. The practice, which has been followed by some head teachers, of having private interviews with pupils before they leave school, or if they show special need of guidance, in order to give moral instruction and to offer warnings against probable temptations, should be general.

32. Instruction in these subjects should be provided in evening continuation schools and in factories and workshops. For this purpose the aid of properly constituted voluntary associations should be enlisted. A high standard of efficiency and tact should be required in the representatives of any voluntary association employed and the guidance of medical practitioners should be secured.

33. Students in training colleges should be carefully prepared to enable them to deal with these subjects. The best means of giving this instruction should be carefully considered by those who are responsible for these institutions.

34. Every man on joining the Navy or Army should at the earliest possible period be fully warned of the grave dangers which venereal diseases involve, and the warning should be formally repeated at intervals of not less than a year.

35. The National Council for Combating Venereal Diseases should be recognised by Government as an authoritative body for the purpose of spreading knowledge and giving advice in regard to the question of venereal diseases in its varied aspects.

Educational authorities should use for purposes of instruction only such literature as has received the imprimatur of the National Council.

General Conclusions.

We have endeavoured to make clear the grave and far-reaching effects of venereal disease upon the individual and the race. The evidence we have taken proves conclusively that these effects cannot be too seriously regarded, and that they result in a heavy loss, not only of actual but of potential population, of productive power, and of expenditure actually entailed. For reasons largely due to the special character of these diseases and the moral stigma attaching to them, it has been found impossible to present accurate estimates of the degree of their prevalence. We have, however, been able to arrive at some important conclusions in regard to their relative prevalence socially and geographically.

The medical evidence furnishes the fact that, by early and efficient treatment, these diseases could be brought under control and reduced within narrow limits. It is beyond doubt that, on the one hand, treatment is in most cases unduly deferred, and that, on the other hand, adequate facilities for the best modern treatment do not exist. Recent discoveries have armed the medical profession with means of combating venereal disease which were unknown in the past. The object must be to bring these means to bear upon every infected person at the earliest possible moment.

We are convinced that this object can be accomplished only by the action of Government directed to the solution of a great national problem. We have recommended no drastic remedies, and except in certain special cases we have not advocated compulsion in any form. The measures which we propose contemplate extended facilities for bacteriological diagnosis combined with the provision of adequate and skilled free treatment, the cost of which we consider should fall mainly upon the national exchequer. These measures, if adopted without delay, will go far to remove the grave evils which our investigations have brought to light. At the same time we hope that the knowledge of the gravity of venereal disease which our report will impress upon the public and the teaching which we recommend will have the effect of inducing infected persons to make full use of the facilities for treatment which, we trust, will be provided forthwith.

The terms of our reference precluded consideration of the moral aspects of the questions with which we have dealt. We are, however, deeply sensible of the need and importance of the appeals to conscience and honour which are made by the religious bodies and by associations formed for this purpose. We believe that these appeals will gain force if the terrible effects of venereal disease upon innocent children and other persons who have no vicious tendencies are more fully realised. Our evidence tends to show that the communication of disease is frequently due to indulgence in intoxicants, and there is no doubt that the growth of temperance among the population would help to bring about an amelioration of the very serious conditions which our inquiry has revealed. We are also conscious of the fact that overcrowded and insanitary dwellings indirectly contribute to the spread of disease, and from improvements in this direction we should expect some diminution of its prevalence. Improvement in the moral standard and in social conditions may, however, be slow, and we are convinced that upon ample provision for early treatment and readiness to take advantage of it any real progress towards the diminution of these diseases as a most baneful factor in the national life must mainly depend.

We recognise that the measures which we propose will need for success more than legislative and administrative measures taken by Government. Continuous and consistent efforts will be required to keep the complex question of combating venereal disease before the public mind, and to secure the constant assistance of voluntary agencies concerned in prevention and rescue work. We hope that the National Council established with this object will become a permanent and an authoritative body, well capable of spreading knowledge and giving advice in regard to this

question in its varied aspects, and that it will be recognised as such by Government.

Our Report must issue at a time when all public activities are preoccupied in fulfilling the manifold needs of war. We are conscious of the disadvantage thus arising, and we feel that there is some risk that our recommendations may not receive the immediate attention which their national importance demands. We desire, therefore, to place on record our strong opinion that the conditions now existing and those which must follow on the conclusion of the war imperatively require that action should be taken without delay. There is no reason to believe that the percentage of infection in the naval and military forces is now greater than in normal times; but there can be no doubt that the total of infected persons has increased. The military authorities are doing their utmost to provide treatment; but the civil population requires corresponding measures, and all experience shows that after a war an excessive incidence of disease is certain to occur, even in districts previously free. In order to meet present and future conditions, it is essential to make provision, and no time should be lost.

We are, therefore, convinced that it will not suffice to establish treatment centres in places where sailors and soldiers are congregated, and that these will be needed in most of the larger and in some of the smaller towns. We realise the claims of economy at the present moment; but, for reasons we have given, we believe that all necessary expenditure will be recouped by the results which can be obtained.

Lastly, we wish to lay stress upon the needs of the future. The diminution of the best manhood of the nation, due to the losses of the war, must tell heavily upon the birth-rate—already declining—and upon the numbers of efficient workers. The reasons for combating, by every possible means, diseases which in normal times operate with disastrous effects alike upon the birth-rate and upon working efficiency are, therefore, far more urgent than ever before. Now and in the years to come the question of public health must be a matter of paramount national importance, and no short-sighted parsimony should be permitted to stand in the way of all means that science can suggest and organisation can supply for guarding the present and future generations upon which the restoration of national prosperity must depend.

The Report was signed by all the Commissioners, Sir Kenelm Digby and Canon Horsley appending certain notes in reservation.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Trinity College and Sir Patrick Dun's Hospital.

FOR the past 50 years Sir Patrick Dun's Hospital has been in a sense the hospital of the medical school of Trinity College. That is to say, that the professors of the medical school were *ex-officio* the physicians and surgeons to the hospital, while at the same time students were not limited to Sir Patrick Dun's in their choice of a hospital. When this arrangement was come to some 50 years ago the College, in return for its right to appoint the surgeons to the hospital, agreed to contribute to its upkeep. The device resorted to to provide the grant was very ingenious, and it ensured that the grant should bear a strict proportion to the number of students in the school. It was decided to charge a fee of £10 to every student of medicine who offered himself for examination for the qualifying degrees in medicine and surgery in Trinity College. This fee was known as the *liceat ad examinandum* fee, and the total amount thus raised was to be paid by the College to Sir Patrick Dun's Hospital. It was probably thought at the time that all, or nearly all, the Trinity College students would attend clinical instruction at Sir Patrick Dun's Hospital, but as a matter of fact, for one reason and another, a fairly large proportion of them elected to receive their clinical instruction elsewhere. The forcing such students to contribute to the upkeep of an institution from which they derived no benefit has always appeared to be an anomaly. The Board of Trinity College has recently had under consideration the relatively high cost of obtaining a medical qualification in its school, and has decided that the *liceat* fee is to be abolished. The grant, though not large, has come to be regarded as part of the endowment of the hospital, and its cessation might seriously hamper useful activities. The hospital has rendered notable services to the College, and it is to be hoped that the College will be able to make such arrangements as will safeguard the financial security of the hospital.

Dispensary Medical Officers on War Service and their Substitutes.

Boards of guardians throughout Ireland have, for the most part, shown a fair spirit in dealing with applications for leave from their medical officers who wish to accept war service. They have not only given, as a rule, fair terms in regard to payment of salary, but they have been willing to accept the suggestions offered by the departing officers as to the discharge of their duties while absent. It is of the greatest importance to the medical officer that this should be so, since in country districts he has no choice but to hand over his private practice to the medical man who is appointed to discharge his dispensary duty. It is to be regretted that in a few instances boards of guardians have subsequently attempted to alter the arrangements at first agreed to by them and to dislodge the substitute nominated by the absent officer. In one such case which has occurred in the Lisnaskea union the Local Government Board has refused to sanction the alteration of plans proposed by the guardians. From another union it is reported that a medical man has moved into the district of an absent medical officer and has ousted the substitute nominated by the latter, and secured for himself certain club appointments previously held by the absent officer. In both these cases the medical man who is acting in opposition to the interests of the absent medical officers was until recently a medical adviser of the National Health Insurance Commissioners. If instances such as these occur with any frequency they will greatly interfere with the recruiting of medical men.

The Tuberculosis Scheme in Belfast.

It appears that under the Insurance Act a sum of money was allocated to Ireland for buildings apart from sanatoriums, and of this £13,000 was allocated to Belfast. Out of this the committee of management of hospitals and dispensaries intended to erect a new institute at a cost of over £4000, and the plans had been approved by the Local Government Board; but the Treasury has refused to advance the money during the war, and so for the present none of the £13,000 is available. One of the aldermen at a meeting of the Belfast city council held on March 1st blamed the committee for not having come to some arrangement earlier, by which this money could have been obtained before the outbreak of the war. It is hoped, however, that when hostilities have ceased the money will still be given by the Government.

The Belfast Medical Students' Association.

At a largely attended meeting of the Belfast Medical Students' Association held on Feb. 18th, Dr. R. L. Rea, the President, being in the chair, an address was delivered by Professor Sir John Byers on the Medical Dialect and Folk-lore of the North of Ireland. The lecturer began by pointing out the

importance of knowing the curious words and phrases employed during illness. These expressions gave at times a wondrous insight into the working of the patient's mind. Folk-lore, mythology, and fairy-lore provided glimpses of the primitive imagination of man, and many of the medical dialect words used in Ulster were survivals of words which had become obsolete in other parts of the country. The wealth of dialect in the North of Ireland was due to the Celtic, Norman, Scotch, English, and French Huguenot immigrations, and the lecturer gave examples of curious words and expressions applied to various parts of the body, and their diseases. An interesting discussion followed, which was opened by the President.

The Scarcity of Petrol.

The medical profession in Ireland are feeling a good deal at present the scarcity of petrol, and there is a strong opinion that the Government should take some measures by which the members of a profession which has rendered so much public service in this war should not be inconvenienced. To limit the supply to one-third will make medical practice impossible.

March 6th.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments have been notified:—Fleet-Surgeon: P. V. Jackson to *Vivid*. Staff-Surgeons: J. Macdonald to *Highflyer* and D. P. Chapman to *Adventure*. Temporary Surgeons: H. Wetherbee to *Canopus*; J. A. W. Robinson to Haslar Hospital; and P. M. Grundy to *Gibraltar*.

ROYAL NAVAL AIR SERVICE.

The following appointment has been notified:—Surgeon: E. L. Markham to *President*, additional.

ROYAL ARMY MEDICAL CORPS.

Lieutenant-Colonel R. B. Graham, late R.A.M.C. (T.), to be temporary Lieutenant-Colonel.

The undermentioned Majors to be temporary Lieutenant-Colonels whilst in charge of Stationary Hospitals: A. McMunn and R. R. Lewis.

Major E. McDonnell to be temporary Lieutenant-Colonel whilst in charge of a Casualty Clearing Station.

Temporary Honorary Major C. A. R. Nitch relinquishes his commission on ceasing to be employed with the British Red Cross Hospital, Netley.

H. S. Souttar to be temporary Honorary Major whilst serving with the British Red Cross Hospital, Netley.

Captain J. J. O'Keefe to be temporary Major whilst in command of a Field Ambulance.

Temporary Honorary Captain G. Dreyer to be temporary Honorary Major.

Canadian Army Medical Corps: Captains to be temporary Majors: S. A. Smith, D.S.O., G. B. Peat, and C. K. Russell. To be temporary Captains: Lieutenant A. Le Boeuf, Lieutenant Thomas Roger Cardew Hays-Hicks, F. B. Day, and R. N. W. Shillington. Lieutenants to be temporary Lieutenants: P. W. Tuller, J. E. Carmichael, A. E. Whitmore, R. C. Robinson, W. S. T. Connell, and D. M. Baillie.

Captain R. G. Archibald is seconded for service with the Egyptian Army.

Temporary Lieutenants to be temporary Captains: H. S. Berry and H. E. Battle.

The undermentioned temporary Honorary Lieutenants to be temporary Lieutenants:—G. O. Hempson, G. M. Vevers, E. B. Barnes, and G. S. Graham.

The undermentioned to be temporary Lieutenants:—L. F. McDowell, H. A. Boyle, S. E. Bethell, C. A. L. Evans, G. C. Metcalfe, R. A. Slater, A. C. Mackay, W. Corbet, J. H. Waterhouse, E. C. E. Barnes, G. G. Old, E. R. Dermer, A. D. Morris, J. B. Robertson, Second Lieutenant J. H. Porter (from the Royal Fusiliers (City of London Regiment)), Second Lieutenant T. W. G. Johnson (from the Connaught Rangers), J. B. Stevenson, W. J. Dilling, K. T. Limbery, L. R. Pickett, D. MacC. Brown, A. McCawley, D. J. Evans, C. W. Webb, J. A. Tippett, C. K. Carroll, P. H. Young, J. B. Rae, J. M. Ross, J. B. Robertson, R. E. Drake-Brockman, C. I. Hannigan, A. N. Drury, A. C. D. Newton, O. W. Gange, J. G. Leslie, L. A. W. Johnson, Temporary Lieutenant S. P. Bedson (from the Northumberland Fusiliers).

Captain (Local Major) W. F. Christie relinquishes his local rank on ceasing to be Senior Medical Officer at the Straits Settlements.

Temporary Honorary Lieutenant H. Nockolds relinquishes his commission on ceasing to be employed with No. 3 British Red Cross Hospital.

Temporary Lieutenants A. E. Clarke, J. W. Martin, E. L. Marsh, and J. H. Yule relinquish their commissions.

INDIAN MEDICAL SERVICE.

Major Ward, I.M.S., has been appointed Inspector-General of Prisons in the Punjab in place of the late Colonel Braide. Major Ward will for a short time continue to act as Superintendent of the Central Jail, Lahore.

SPECIAL RESERVE OF OFFICERS.

Army Medical Service.

Colonel W. H. Bull, from Assistant Director of Medical Services, to be Colonel.

Royal Army Medical Corps.

Captain H. G. Trayer to be temporary Major while commanding a field ambulance.

The undermentioned Lieutenants to be Captains:—Alan R. Laurie, John T. Scrogie, and Robert F. Walker.

GENERAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Lieutenant D. V. M. Adams to be Captain.

TERRITORIAL FORCE.

Army Medical Services.

Major W. E. Miles, from the Territorial Force Reserve, to be Deputy Assistant Director of Medical Services, London Division.

Captain (temporary Major) C. M. Fegen, from the Sanitary Service, to be Deputy Assistant Director of Medical Services, 2nd London Division.

Royal Army Medical Corps.

Eastern Mounted Brigade Field Ambulance: Lieutenant V. M. Wallis to be Captain.

South Midland Field Ambulance: Lieutenant W. G. McKenzie to be Captain.

North Midland Mounted Brigade Field Ambulance: Lieutenant S. A. S. Malkin to be Captain.

Home Counties Field Ambulance: Lieutenants J. J. C. Hamilton and A. L. Sharpin to be Captains.

London (City of London) Field Ambulance: M. J. Hackett to be Lieutenant.

Lowland Field Ambulance: Lieutenants to be Captains: J. W. G. H. Riddel and R. Lawson.

London General Hospital: Captain K. B. Clarke relinquishes his commission on account of ill-health. Lieutenant W. H. Lloyd and Lieutenant H. G. Mallam to be Captains.

Northern General Hospital: Lieutenant H. G. Dodd to be Captain.

Southern General Hospital: Lieutenant R. W. Acheson to be Captain.

Home Counties Divisional Sanitary Section: Captain A. E. Tait, from North Midland Field Ambulance, to be Captain.

London Sanitary Company: T. Legge to be Lieutenant.

Highland Mounted Brigade Field Ambulance: Lieutenant W. H. Milligan to be Captain.

East Anglian Field Ambulance: Lieutenant (temporary Captain) G. C. Gray relinquishes his commission on account of ill-health.

North Midland Field Ambulance: Lieutenant (temporary Captain) C. M. Cowper relinquishes his commission on account of ill-health.

Welsh Field Ambulance: Lieutenant J. E. Dunbar, from South Wales Mounted Brigade Field Ambulance, to be Lieutenant.

East Lancashire Field Ambulance: Major F. W. Marsden relinquishes his commission on account of ill-health.

London Field Ambulance: Temporary Captain G. E. Nash to be Captain.

Western General Hospital: Lieutenant J. G. McKinlay to be Captain.

Supernumerary for Service with the Officers Training Corps: V. G. L. Fielden to be Lieutenant (temporary) for service with the Medical Unit, Belfast University Contingent, Senior Division, Officers Training Corps.

Attached to Units other than Medical Units.—Lieutenant H. Connop and Captain G. E. Nash, from London Field Ambulance, to be Captains.

VISIT OF THE KING TO THE ROYAL ARMY MEDICAL COLLEGE.

The King visited the Royal Army Medical College, Grosvenor-road, S.W., on March 7th, when he was received by Surgeon-General Sir Alfred Keogh (Director-General, Army Medical Service), Surgeon-General Sir David Bruce (Commandant of the College), Colonel W. H. Horrocks, Lieutenant-Colonel D. Harvey, Major E. H. Starling, Professor Baker, and Professor Hill.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN the 96 English and Welsh towns with populations exceeding 50,000 persons at the last Census, 7795 births and 6176 deaths were registered during the week ended Saturday, March 4th. The annual rate of mortality in these towns, which had been 15·2, 16·3, and 15·7 per 1000 in the three preceding weeks, rose in the week under notice to 17·8 per 1000 of their aggregate population, estimated at 18,136,180 persons at the middle of the year 1914. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 15·1, against a corresponding rate of 14·4 per 1000 in London. The death-rate last week ranged from 8·6 in Ilford, 8·8 in Hornsey, 9·4 in Leyton, 10·3 in Eastbourne, and 10·8 in Wigan, to 23·5 in Gillingham, 24·0 in Stockport, 26·2 in Cambridge, 26·6 in Exeter, and 27·8 in Liverpool.

The 6176 deaths from all causes exceeded the number in the previous week by 727, and included 409 which were referred to the principal epidemic diseases, against 377 and 351 in the two preceding weeks. Of these 409 deaths, 120 resulted from measles, 114 from whooping-cough, 82 from diphtheria, 65 from infantile diarrhœal diseases, 17 from scarlet fever, and 11 from enteric fever, but not one from small-pox. The annual death-rate from these diseases was equal to 1·2, against 1·0 per 1000 in the previous week. The deaths attributed to measles, which had increased from 62 to 98 in the four preceding weeks, further rose to 120, and caused the highest annual death-rates of 1·7 in Bristol and in Rochdale, 2·7 in Wolverhampton and in Great Yarmouth, 3·5 in Stockton-on-Tees, 3·6 in Leicester, 3·9 in Swansea, and 4·1 in Stockport. The deaths referred to whooping-cough, which had been 121, 133, and 116 in the three preceding weeks, further fell to 114; the highest death-rates from this cause were 1·1 in West Ham, in Ilford, in Wolverhampton, and in Birmingham, 1·4 in Bootle, and 1·7 in Gateshead and Swansea. The fatal cases of diphtheria, which had been 71, 61, and 56 in the three preceding weeks, rose to 82, and included 26 in London, 7 in Liverpool, 4 each in West Ham and Stoke-on-Trent, and 3 each in Southport, Sheffield, and Middlesbrough. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 64, 73, and 57 in the three preceding weeks, rose to 65, of which 14 occurred in London, 5 in Manchester, and 4 each in Nottingham and Liverpool. The deaths attributed to scarlet fever, which had been 18, 25, and 14 in the three preceding weeks, rose to 17, of which 2 were recorded in London. The 11 fatal cases of enteric fever were slightly in excess of the average in the earlier weeks of the quarter, and included 2 each in London, Manchester, and Sheffield.

The number of scarlet fever patients under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, which had declined from 2257 to 1989 in the five preceding weeks, further fell to 1939 on Saturday last; 234 new cases were admitted during the week, against 196, 215, and 194 in the three preceding weeks. These hospitals also contained on Saturday last 1537 cases of diphtheria, 211 of whooping-cough, 104 of measles, and 57 of enteric fever, but not one of small-pox. The 1534 deaths from all causes in London were 271 in excess of the number in the previous week, and corresponded to an annual death-rate of 17·7 per 1000. The deaths referred to diseases of the respiratory system, which had increased from 224 to 284 in the four preceding weeks, further rose to 373, but were 95 below the number registered in the corresponding week of last year.

Of the 6176 deaths from all causes in the 96 towns, 185 resulted from violence and 479 were the subject of coroners' inquests, while 1795 occurred in public institutions. The causes of 59, or 1·0 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest. All the causes of death were duly certified in London and in its 14 suburban districts, in Leeds, Bristol, Bradford, Newcastle-on-Tyne, and in 48 other smaller towns. Of the 59 uncertified causes, 13 were registered in Birmingham, 8 in Liverpool, and 3 each in Blackpool and Darlington.

HEALTH OF SCOTCH TOWNS.

In the 16 largest Scotch towns with an aggregate population estimated at 2,355,300 persons at the middle of this year, 1075 births and 730 deaths were registered during the week ended Saturday, March 4th. The annual rate of mortality in these towns, which had been 16·3, 15·5, and 16·2 per 1000 in the three preceding weeks, was again 16·2 per 1000 in the week under notice. During the first nine weeks of the current quarter the mean annual death-rate in these towns averaged 15·3, against a corresponding rate of 15·1 per 1000 in the large English towns. The death-rate last week ranged from 9·8 in Kilmarnock, 9·9 in Motherwell, and 10·0 in Perth, to 20·0 in Hamilton, 20·7 in Aberdeen, and 21·8 in Coatbridge.

The 730 deaths from all causes were 2 below the number in the previous week, and included 56 which were referred to the principal epidemic diseases, against 69 and 63 in the two preceding weeks. Of these 56 deaths, 23 resulted from measles, 10 from diphtheria, 9 from scarlet fever, 8 from infantile diarrhœal diseases, and 6 from whooping-cough, but not one from small-pox or enteric fever. The annual death-rate from these diseases was equal to 1·2, and coincided with that recorded in the large English towns. The deaths attributed to measles, which had been 32, 34, and 28 in the three preceding weeks, further fell to 23, and included 14 in Glasgow, and 3 each in Coatbridge and Kilmarnock. The deaths referred to diphtheria, which had been 18, 15, and 8 in the three preceding weeks, rose to 10, of which 4 were registered in Glasgow and 2 each in Aberdeen and Paisley. The fatal cases of scarlet fever, which had been 11, 11, and 15 in the three preceding weeks, fell to 9; 3 deaths occurred in Aberdeen and 2 each in Glasgow and Paisley. The deaths of infants (under 2 years) from diarrhœa and enteritis, which had been 3, 6, and 8 in the three preceding weeks, were again 8 in the week under notice, and included 3 in Glasgow and 2 in Aberdeen. The 6 fatal cases of whooping-cough were 3 in excess of the average in the earlier weeks of the quarter, and included 2 each in Glasgow and Coatbridge.

The deaths referred to diseases of the respiratory system, which had been 96, 88, and 126 in the three preceding weeks, further rose to 134 in the week under notice, but were 130 below the number registered in the corresponding week of last year. The deaths from violence numbered 21, against 35 and 30 in the two preceding weeks.

HEALTH OF IRISH TOWNS.

In the 19 town districts of Ireland with populations exceeding 10,000 persons at the last Census, 519 births and 397 deaths were registered during the week ended Saturday, Feb. 26th. The annual rate of mortality in these towns, which had been 19·0, 20·2, and 18·8 per 1000 in the three preceding weeks, fell in the week under notice to 18·0 per 1000 of their aggregate population estimated at 1,148,468 persons at the middle of last year. During the first eight weeks of the current quarter the mean annual death-rate in these towns averaged 18·7, against corresponding rates of 14·8 and 15·2 per 1000 in the English and Scotch towns respectively. The death-rate during the above week was equal to 20·4 in Dublin (against 14·6 in London and 15·1 in Glasgow), 16·8 in Belfast, 15·0 in Cork, 20·2 in Londonderry, 20·3 in Limerick, and 9·5 in Waterford, while in the 13 smaller towns the mean rate was 16·7 per 1000.

The 397 deaths from all causes were 17 fewer than the number in the previous week, and included 29 which were referred to the principal epidemic diseases, against 34 and 30 in the two preceding weeks. Of these 29 deaths, 9 resulted from measles, 7 each from whooping-cough and infantile diarrhœal diseases, 4 from scarlet fever, and 2 from diphtheria, but not one from enteric fever or small-pox. The death-rate from these diseases was equal to 1·3, against corresponding rates of 1·0 and 1·4 per 1000 in the English and Scotch towns respectively. The deaths attributed to measles, which had been 5, 10, and 9 in the three preceding weeks, were again 9 during the week, and comprised 5 in Belfast, 3 in Dublin, and 1 in Cork. The deaths referred to whooping-cough, which had averaged 11 in the three preceding weeks, fell to 7; 4 deaths were recorded in Belfast, 2 in Limerick, and 1 in Dublin. The fatal cases of diarrhœa and enteritis (among infants under 2 years), which had been 8, 4, and 5 in the three preceding weeks, rose to 7, and included 4 in Belfast and 2 in Dublin. The 4 deaths from scarlet fever, of which 3 occurred in Belfast, were slightly in excess of the average in the earlier weeks of the quarter. The fatal cases of diphtheria were registered in Dublin and Belfast.

The deaths referred to diseases of the respiratory system, which had been 76, 83, and 68 in the three preceding weeks, rose to 92 in the week under notice, but were 89 below the number registered in the corresponding week of last year. Of the 397 deaths from all causes, 121, or 30 per cent., occurred in public institutions, and 8 resulted from violence. The causes of 15, or 3·8 per cent., of the total deaths were not certified either by a registered medical practitioner or by a coroner after inquest, and included 5 in Dublin, 4 in Belfast, and 3 in Cork; in the large English towns the proportion of uncertified causes did not exceed 1·1 per cent.

DONATIONS AND BEQUESTS.—The late Miss Clementina Christie, of Broughty Ferry, bequeathed £500 each to Dundee Royal Infirmary and to the Home for Incurables, King-street, Dundee, and £300 to the Convalescent Home at Barnhill.

Correspondence.

"Audi alteram partem."

THE PRESENT POSITION OF MIDWIVES.

To the Editor of THE LANCET.

SIR,—As one who is keenly interested in the midwifery outlook may I venture to question whether the optimistic tone in the leading article under the above heading in your issue of Feb. 26th can be altogether justified by fact? We dare not comfort ourselves with the number of midwives upon the roll, as a large proportion have never had the slightest intention to practise, and the mothers and infants of the country would therefore have been equally benefited had they passed an examination in Sanskrit. Your article assures us that there is no shortage of midwives in towns. Neither was there before the Midwives Act was passed, and for the same reason—i.e., the large number of untrained women in practice. In 1914 the Central Midwives Board estimated the numbers of trained and untrained practising midwives as equal. And our training—how far has this been brought after all these years? Is there one midwife in 100—or shall I say 1000?—who systematically tries to ascertain *and to prevent* the complications that threaten her patient at the time of booking? A few may possibly test the urine of primiparæ a month or two before labour, but how many contracted pelves are sent up for advice to our hospitals and consultants on a midwife's finding, or how many women with the habit of abortion for diagnosis and treatment? What ideas has the ordinary midwife on the management of breast feeding (quite an intricate science in itself) and the still more involved details of supplementary or artificial feeding? Her views are mostly bounded by some one tinned food, or else the archaic milk and barley-water, dealt out in unvarying strength and quantity to all comers. It will take us many generations to greatly improve the statistics of our infant mortality if we rest satisfied with our midwives and their training as we find them at present.

Your article admits that there may be some shortage in the country districts, although even then our anxiety is lulled to rest by the statement that "as the old midwives die off they are being replaced by trained women." And yet the 1915 Report of the Local Government Board speaks of 51 villages in Bedfordshire and large areas in Cornwall without a midwife of any kind; "a serious shortage" in parts of Cheshire and Wales; "places very hard to fill" in Wiltshire, and adds significantly, "In the majority of areas with scattered populations the services of a midwife are lacking." In such areas the doctor may be several miles off, and the demand upon the time of the panel doctor may render it impossible to obtain his services at the critical moment. Wales is, of course, one of the blackest spots in the United Kingdom in all matters relating to childbearing; the proportion of *bonâ fide* midwives there has always been enormous, and we were not surprised to find in the same report that the total maternal death-rate per 1000 births in that country was quite recently 5·58, as against 3·86 for the rest of England, and 3·03 in the poor district of Battersea. In the same way the infant death-rate varies, in the same period of years, between 41 and 18 in 1000, the difference between the two figures showing approximately the number of infant lives that might be saved, even with our present imperfect knowledge, during the first week of life. Other factors undoubtedly influence these statistics, but the skill and wisdom of the attendant at birth and during the puerperium cannot be held a negligible factor. It is no gentle anodyne of a soothing nature that we require in these times of stress and wholesale slaughter, but a drastic revolution in the training of our young people, and more especially of those who have so great an influence on the life and death of the next generation.

We greet with satisfaction the increased length of training demanded by the Central Midwives Board, but we can hardly consider that the ideal has been attained when we reflect that in order to nurse any sort of disease, to attend any kind of surgical disaster *under a doctor* a three years' course is necessary. Midwifery has, perhaps, more possibilities of sudden and fatal emergencies than any other branch of the healing art, and it is hardly likely that a woman should be equipped either to diagnose such emergencies beforehand or to deal with them until the arrival of the doctor in one-sixth of the time that it takes her more protected sister to learn how to nurse a case of acute rheumatism or a fractured tibia.

I am, Sir, yours faithfully,

ALICE S. GREGORY,
Honorary Secretary, British Hospital for Mothers and Babies, and National Training School for District Midwives.
Woolwich, March 2nd, 1916.

WHAT IS THE SIMPSON LIGHT?

To the Editor of THE LANCET.

SIR,—In your issue of March 4th an article appears by Dr. J. A. Menzies on the Treatment of Septic Wounds with the Simpson Light. The following good effects are claimed: (1) relief of pain; (2) increase of movement; (3) relief of swelling; (4) absorption of scar tissue; (5) stimulation of unhealthy granulation tissue; and (6) diminution of discharge. The author further claims to have had good results in two cases of Graves's disease.

So far as wounds are concerned, there is not one of these good effects which cannot be brought about by judicious X ray treatment; unless, of course, there is some definite surgical cause which prevents their healing. X rays are extensively used at the Cambridge Hospital, Aldershot, for all the above purposes, and especially for the relief of pain and the softening and absorption of scar tissue.

What is the Simpson light? An illuminating discussion at the Electro-therapeutical Section of the Royal Society of Medicine in January last brought out the following facts. The spectrum of the Simpson arc appears to be identical with that of tungsten. It is a source of very abundant ultra-violet rays, some of which are rather more penetrating than those from a Finsen lamp. Even the hardest of them are, however, completely absorbed by 2–3 mm. of human tissue (Sidney Russ). Dr. J. H. Sequeira also showed that the production of erythema of the skin can be prevented by the interposition of thin layers of paper. He concluded that deep effects, when they occur, must be due to counter-irritation.

The Simpson light has been boomed in the public press as a "new kind of X ray." It cannot be too emphatically stated that the radiation from a Simpson arc is in no way related to that from an X ray tube, except in so far as both are forms of

"light," using the term in its technical sense. The good results in some cases are not in dispute. These benefits can, however, be obtained in general by X rays, and the advantages of the tungsten arc remain to be proved. It is claimed that there can be no ill-effects—a bold claim, surely, to make so soon, when the history of the Roentgen ray is remembered. In the treatment of any lesion when a deep effect is sought, it would seem foolish to use a feebly penetrating radiation. Anyone who has had experience of the rapid and remarkable effect of X rays on Graves's disease will not be likely to abandon them for any new method without some very strong reason.

It would be much better to speak of the "tungsten arc" than of the Simpson light—or, at any rate, of the "Simpson tungsten arc"; this would tend to take away the air of mystery which seems to be gathering round the subject. As the rays in question are on the whole rather more penetrating than those from other sources of ultra-violet light they should certainly be investigated therapeutically. Some cases may be found which do better under them than under X rays; but any suggestion that a new therapeutic agent has been discovered is strongly to be deprecated. I have heard of advanced cases of deep-seated cancer being treated by the "Simpson" light. The rays probably stimulate general metabolism, as will any form of light; but only the very ignorant could suppose them capable of reaching and directly affecting an internal growth.

I am, Sir, yours faithfully,

F. HERNAMAN-JOHNSON.

Cavendish-square, W., March 4th, 1916.

DIAGNOSIS OF RUPTURED INTESTINE.

To the Editor of THE LANCET.

SIR,—Whilst congratulating Mr. R. P. Rowlands on the well-deserved success which he obtained in the treatment of his case of ruptured intestine,[1] I should like to add somewhat to his remarks on the diagnosis of these lesions. Surgeons since the time of John Croft, if not before, have placed the greatest reliance on the symptoms which Mr. Rowlands has accepted as the most important—pain, tenderness, and rigidity of the abdominal muscles. Having considered the subject of abdominal injuries for some years, and had some experience as a hospital surgeon, I have come to the following conclusions as regards rupture of the small intestine.[2] They may be divided into three groups.

(*a*) Those in which there is shock, vomiting, acute abdominal pain, with great tenderness over the part struck, and board-like rigidity of the abdominal wall. All these symptoms are present, but they vary somewhat in their intensity; at one time shock is the main symptom, at another it is the pain, and so on. With these symptoms will be found a certain amount of dullness on percussion. This group forms about 50 per cent. of all cases.

(*b*) In this group there is no evident shock, and perhaps the patient goes to the hospital on foot or goes home, congratulating himself that he has had a "narrow escape"! He may have vomited after the accident which made him feel faint, but there are no marks of injury on the abdominal wall or they are but slight. He has considerable local pain and there is rigidity of muscle, sometimes confined to the side of the abdomen which was struck. There is tenderness on pressure and perhaps localised dullness, but the man feels that he will soon get over it, and probably remains under treatment with reluctance, or neglects to call in medical advice when he gets home. This group forms about 35 per cent. of the total number of cases.

(*c*) In the third group the symptoms are more indefinite; there is a history of abdominal injury, probably of the kind which sometimes produces a rupture of the intestine, but the shock is trifling; there is no vomiting, local pain is slight or absent, there is little tenderness, no rigidity of muscle, whilst percussion shows no change. After a variable time there may be a rising pulse, with that change in facial aspect which indicates to the experienced eye the presence of grave peritoneal inflammation. It may not be easy to say at what moment this commenced, but "a change has taken place." It may develop after an attack of vomiting, as in the case under the care of the late Mr. Walsham. That surgeon, who was patiently watching for symptoms in a case of this kind, found a complete change after the patient had vomited, and operating at once, gained a success. In yet another patient the onset of serious symptoms may be sudden and unexpected, caused by the giving way of a portion of severely contused bowel.

In the large majority of recorded cases the presence or absence of dullness on percussion is not mentioned in the published account, and an extensive extravasation of blood due to ruptured mesentery is very rare. A localised dullness, caused by a limited hæmorrhage, escape of intestinal fluid, or collapsed gut is not unusual.

The St. Thomas's statistics of the results of operation for the years 1886 to 1910 inclusive were 31 operations with 10 recoveries, whilst during the same period seven others were admitted which died from the injury. They were mostly too far gone to permit of operation. The small intestine was ruptured in 25 (of these five recovered), the large intestine in six, of which five recovered.

My late colleague, Mr. Bernard Pitts, used to advise that exploration should be done where there was a clear history of abdominal injury, such as by the kick of a horse or a mule, no matter what symptoms were present when the surgeon saw the patient. Few surgeons will disagree with this advice.

I am, Sir, yours faithfully,

Harley-street, W., Feb. 25th, 1916. W. H. BATTLE.

[1] THE LANCET, Feb. 26th, 1916, p. 459.
[2] The Acute Abdomen, p. 39, second edition.

INOCULATION OF CIVILIANS AGAINST THE ENTERIC GROUP.

To the Editor of THE LANCET.

SIR,—The far-seeing annotation in THE LANCET of Feb. 12th, and Dr. R. Donaldson's suggestions in the issue of Feb. 19th, concerning the recent outbreak at Reading, deal with public and individual prophylaxis against the infection, including the isolation of the carriers as well as of the sufferers. A further duty is to deal with its supply by suppressing the carrying evil. This would not be suppressed by merely curing our carriers if we disposed of a cure for them—for want of any being put into operation we are still wasting much money, medical labour, and military service in isolation hospitals. There is no other way but "to prevent its possibility" by an efficient bowel sanitation as part of the treatment of the fever. For the febrile, as well as for the cured typhoid carrier (and also for the typhoid-intact or contact

carrier) the chief objective for rational treatment is the fæcal indication. As a general infection typhoid is self-limiting by saturation, because the blood and the tissues are a limited breeding ground. The fæcal breeding ground being constantly renewed is unlimited; and the intestinal culture persists after the blood and tissues have recovered. Acoprism (ἄκοπρος, Hippocrates), by temporary suspension of fæcal production, is not a visionary proposition: it has been put to the test in typhoid, though opportunities have failed me for its application in dysentery and other intestinal infections, and in healthy carriers. It is, apart from the wished-for bacteriological abortive cure, our only means for checking the progress and the worst evils of typhoid—re-absorptive intoxications from the fæces, and sloughing of the ulcers from perpetual contact with the organisms of sepsis. An empty bowel is the first requisite for an efficient use of animal charcoal as an adsorptive for toxins; and likewise for the efficiency of its well-known cleansing and protecting action for ulcers; this has recently been utilised with striking results for wounds, both in the field for the prevention of sepsis, and in base hospitals for its cure. The other simple requisite is a regulating morning dose of castor-oil to expel the charcoal day by day, and with it its sweepings of infected mucus and other secretions. Detoxication is soon manifest in the patient's improvement and in the readings of his chart; whilst our bacterioscopic identification of the more slowly progressive bowel disinfection is much facilitated. If after four weeks of this cleansing treatment nothing should remain of the original fæcal culture the carrying evil will have been practically prevented.

The disinfection of carriers is a much easier and shorter task, if we may trust the reports of recent cures obtained abroad, with the help of animal charcoal. According to other reports, dysentery has also been greatly benefited, and cholera in a surprising degree, by animal charcoal. It does not seem, however, to have been recently prescribed in typhoid, where it is so much needed. But charcoal is now being used to facilitate its detection in the fæces: the quickest method is based upon its recently discovered selective attraction for typhoid bacilli.

The principle of a residueless alimentation was foreshadowed in Sir William Jenner's warning against too much milk, and in Prideaux Selby's historical paper on Whey, and was fully described in my paper on the Empty Bowel Treatment—Traitement à vide.[1] I may incidentally suggest that there is room for it in the rational treatment of fæcal stasis before any heroic mutilations can be reasonably contemplated. As regards its practical safety and efficiency, it is enough to say that it can supply unlimited calories easily reckoned, together with the complete variety of a healthy dietary. Solid cane sugar is all food and a heart tonic as well. Yolk of egg is almost completely absorbable in the upper bowel: likewise predigested albumin and starch, butter, cream, whey, meat jellies, fruit jellies, clear vegetable soups (of greater nutritive value perhaps to the patient and of less value to the organisms than beef-tea), and lastly red wine, the blood-making value of which we have too much neglected. None of them deposits any appreciable residue; they leave a clear field for our direct antiseptic treatment of the mucous membrane, in all our intestinal infections.

I am, Sir, yours faithfully,

Upper Brook-street, W., Feb. 25th, 1916. WILLIAM EWART.

[1] Brit. Med. Jour., 1905, vol. ii., p. 1501.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to the fact that in my letter to THE LANCET of Feb. 19th on the Danger to Civilian Communities of a Typhoid-Paratyphoid Outbreak, I omitted to mention the method employed in determining the agglutination value of the sera examined. It is a point, perhaps, of some importance, and I beg leave, Sir, to refer to it now. The macroscopic method was adopted as being infinitely easier where many sera have to be examined, and in addition more accurate. The suspensions of bacilli used were those sent out by the Standards Laboratory, Oxford, under the title of Standard Agglutinable Cultures, of which three are issued, containing B. typhosus, B. paratyphosus A, and B. paratyphosus B, respectively. Definite dilutions of the patients' sera were put up against all three cultures and the highest dilution noted in which agglutination occurred. It would be well in civil practice, at least in epidemic periods, to record the results obtained by testing all sera against all three organisms. May I add that the Reading Laboratory, in common with many others in this country and abroad, is deeply indebted to the Oxford Laboratory, which, at the instigation of the Medical Research Committee, provides these standard cultures.

Apart from the fact that various laboratories are enabled to use the same standard cultures, thus tending to secure uniformity of results, it is an enormous saving of time to many laboratories which at the present time are understaffed and over-worked. Might I make a suggestion in this connexion—viz., that the provision of a central depôt from which the various media in common use could be issued, would be of immense service to the various war laboratories? This work could be carried out expeditiously and on a large scale by a few laboratory assistants expert in media making, and would considerably relieve the pressure of routine work in these laboratories.

I am, Sir, yours faithfully,

Reading, Feb. 28th, 1916. ROBERT DONALDSON.

FUNCTIONAL NERVOUS DISEASE.

To the Editor of THE LANCET.

SIR,—It would perhaps tend to dissipate confusion if those discussing psycho-analysis in the correspondence now proceeding under the above title were to become clearer as to what psycho-analysis actually is. The name, devised by Professor Freud, is used by him to denote (*a*) a certain technical method for the exploration of the unconscious mind; (*b*) the theory *necessarily* involved in the use of this method (one presupposing, among other things, psychical determinism, the law of causality, &c.); and (*c*) the accompanying study of the subject-matter concerned. Of late, presumably under the stimulus of the remarkable success achieved by psycho-analysis, it has become the fashion in certain medical circles so to extend the term as to denote by it almost any clinical method of analysing mental processes, or even the ordinary taking of a case history. That the practice has led to much quite avoidable confusion is not surprising. In his letter of Jan. 29th Captain

W. Brown proposes to remedy this state of affairs by the singular device of re-christening the method "autognosis." Apart from the fact that this word is already in use in medical psychology in another sense, I should have thought a simpler solution, and one more consonant with accepted scientific etiquette, would be to see to it that the term "psycho-analysis" is used only with the connotation given to it by its author.

Captain Brown defines the psycho-analytic method to be that "of so-called free association, whereby hidden memories and hidden relationships between conscious mental processes may be brought to light." Now, while it is true that this procedure is an extremely important one in the psycho-analytic method, it is neither an essential one (not being employed, for instance, in the psycho-analysis of anthropological data), nor does it comprise more than a relatively small part of the method. It would be just as untrue to describe all study of dreams as psycho-analysis merely on the ground that this study also plays an extremely important part in psycho-analysis. It does not seem to me that the procedure of free association requires any further name than that which it already has—viz., free association. Nor does it seem to me proper to designate as a psycho-analyst everyone who makes any kind of clinical exploration of the mind, any more than it would be proper to call a butcher a surgeon merely because a part of their armamentarium—the knife—is common to both.

I venture to add, without much fear of contradiction, that the statements made by more than one of your recent contributors, to the effect that they have seen many patients who have been harmed by psycho-analysis, do not refer to the patients of those who are psycho-analysts in the only legitimate sense of the word—i.e., those who have been competently trained in the subject.

I am, Sir, yours faithfully,

Portland Court, W., Feb. 29th, 1916. ERNEST JONES.

THE SIGNIFICANCE OF CERVICAL CAPILLARY MARKINGS.

To the Editor of THE LANCET.

SIR,—In a letter in your issue of March 4th Dr. R. Crawshaw Holt, referring to the possible connexion of certain cutaneous telangiectases with pulmonary tuberculosis, writes:—

> These markings are an abnormality, and though I have only seen them in association with pulmonary tuberculosis it is quite possible they may occur in association with other diseases, but the fact has yet to be recorded.

In "A Note on Cutaneous Telangiectases and their Etiology," 12 years ago,[1] after alluding to the well-known "costal fringe" of telangiectases and its causation, I wrote—

> Cutaneous telangiectases are, indeed, by no means limited to the costal fringe. They may occur, scattered or in groups, on almost any part of the body. One of the commonest situations is on the back of the thorax, on each side of the spinal column, in the upper interscapular region. In this situation, I think, a few hair-like telangiectases can be found in 50 per cent. of healthy young adults.

I am, Sir, yours faithfully,

Harley-street, W., March 4th, 1916. F. PARKES WEBER.

To the Editor of THE LANCET.

SIR,—I have been familiar for some time past with the peculiar "capillary markings" over the lower cervical and upper dorsal region of consumptive patients, to which Dr. R. Crawshaw Holt has drawn attention in your issue of March 4th. It is well known that pulmonary tuberculosis, especially in the early stages, is accompanied by many reflex phenomena, such as cutaneous hyperalgesia, vertebral tenderness, and disturbances of the sympathetic nervous system. The presence of vaso-motor fibres in lung tissue may remind us that a sympathetic dilatation of the blood capillaries in the near vicinity of a tuberculous focus cannot be regarded as an impossibility. These spider-like markings, which I should prefer to call blue or purplish rather than red, have frequently been of considerable help to me in the diagnosis of an early case of phthisis. If the physical signs of a suspected case be almost non-existent, or very slight indeed, the presence of dilated capillaries about the seventh cervical or first dorsal vertebra has been sufficient to impress me with its tuberculous nature. It would be interesting to learn the experiences of other clinical observers in connexion with the diagnostic value of this sign.

I am, Sir, yours faithfully,

G. NORMAN MEACHEN, M.D., M.R.C.P. Lond.

Durham, March 4th, 1916.

[1] Edinburgh Medical Journal, April, 1904, p. 347.

A NEW METHOD OF RAPID X RAY LOCALISATION.

To the Editor of THE LANCET.

SIR,—I wish to put on record an entirely new method for ascertaining the depth of embedded foreign bodies which are capable of demonstration by the X rays. Mechanicians are now at work evolving a simple and businesslike method of applying this system, and for this reason I merely state the principle.

The tube is moved a short distance and the length of the excursion of the shadow of the foreign body noted. The screen is now raised until this excursion has doubled itself. The distance the screen has been raised is the depth of the foreign body. The extraordinary ease with which this can be accomplished, and the fact that no measurements are required except those given above, make this system, to my mind, the simplest and best I have ever come across.

I hope in a very short time to be able to describe a piece of apparatus that will enable the depth of any foreign body to be ascertained in a few seconds. Messrs. Butt and Co. are making every effort to bring out a suitable instrument in the course of a few weeks.

I am, Sir, yours faithfully,

EDWARD W. H. SHENTON,
Senior Surgical Radiographer, Guy's Hospital.

Harley-street, W., March 2nd, 1916.

A LETTER FROM LISTER.

To the Editor of THE LANCET.

SIR,—The accompanying letter from Lister gives so clear a picture of his method in such a case as the one described that it cannot fail to be surgically interesting and instructive. The letter refers to a tuberculous elbow in a gentleman, aged 28, in which all three bones became involved and which I had excised a year before by Lister's advice, with the result of a small persisting sinus and too flail a joint necessitating a leather splint. I followed the advice of the letter, with the result of a complete cure and an elbow with fair movement and fair fixation and the abandonment of the splint. The arm remains healthy and very serviceable to

this day. I had the fortune to be a dresser in Lister's wards in the Glasgow Royal Infirmary in 1864–65.—I am, Sir, yours faithfully,

T. BATES, Sen.,
Honorary Consulting Surgeon, Worcester General Infirmary.

Worcester, Feb. 27th, 1916.

[ENCLOSURE.]

12, Park Crescent, Portland Place,
30th March, 1893.

DEAR MR. BATES,—I quite agree with you as to the course to pursue in this case. I did not push the probing very far, and did not feel any bare bone; but the chances are that there is recurrence of caries. Free exposure of the affected parts and free scraping away of all tubercular tissue in the soft parts with the sharp spoon and free gouging of the bones if they prove to be diseased is certainly the thing to do. You will probably do the operation bloodlessly, by applying an elastic bandage to the upper arm after raising the limb 2 or 3 minutes; and when the operation is over, before the bandage is removed, I would advise you to apply chloride of zinc solution, 40 grs. to the ounce, to the raw surfaces of the bones and soft parts. A dressing with iodoform gauze would be good—i.e., applying such gauze to the interior of the wound or dusting the cut surfaces with iodoform. Then I agree with you that it will be well to keep the limb without movement, with the arm in a splint and sling—i.e., forearm at right angles (or rather more) to the arm, for a considerable time—to obtain as firm a state of the joint as possible.

Believe me, yours very truly.

Tom Bates, Esq., Worcester. JOSEPH LISTER.

BILLON NOVARSENOBENZOL.

To the Editor of THE LANCET.

SIR,—My experience of the use of Billon brand of novarsenobenzol may be of interest to those who, like myself, have many cases of yaws to treat, especially in view of the doubts expressed in THE LANCET as to the safety of Billon brand some months ago.[1]

In June, 1915, the Fiji Government supplied me with 30 grammes of Billon novarsenobenzol. Seventy patients were treated with this for yaws or its sequelæ, 69 being Fijians and 1 half-caste. The drug was given intramuscularly dissolved in sterile filtered rain-water. Dosage was in accordance with the views expressed in my communication to THE LANCET of August 8th, 1914. In all 97 injections were made, the dose varying from 0·1 to 0·5 gramme. The patients presented such manifestations of yaws as are usually seen at Fijian hospitals, the majority being cases of tertiary ulceration and periostitis. One case of dementia paralytica (in Fijians yaws plays the part of syphilis in the causation of this disease) was treated without any apparent benefit. With this exception all were cured. In every respect the drug appeared to act similarly to the German neosalvarsan. No bad after-effects have been noticed, though nearly all the patients have been seen frequently since leaving hospital.

I am, Sir, yours faithfully,

PHILIP HARPER,
District Medical Officer, Fiji.

Jan. 10th, 1916.

ALBUMINURIC RETINITIS.

To the Editor of THE LANCET.

SIR,—Dr. Samuel West, in his interesting letter to THE LANCET of Feb. 12th, writes:—

> The degenerative form presents the glistening white patches round about the yellow spot especially, which are so characteristic of albuminuric retinitis. *It is pathognomonic of granular kidney, for it occurs in no other disease.* (The italics are mine.)

With all respect to Dr. West, I must demur to this statement, for it is quite at variance with the experience of ophthalmic surgeons. Precisely the same fundus-picture is sometimes found in diabetes, the albuminuria of pregnancy, scarlatinal nephritis of children, and in intracranial tumours.

I am, Sir, yours faithfully,

KENNETH CAMPBELL.

Wimpole-street, W., March 3rd, 1916.

THE TREATMENT OF CRIPPLED SOLDIERS.

To the Editor of THE LANCET.

SIR,—Major Robert Jones is advising the appointment of a Minister for dealing with the whole question of crippled soldiers. I should like to join with Major Jones in advocating the immediate setting up of a Government department for the treatment of these men. As long as a year ago I drew up a memorandum embodying a scheme for the treatment of more or less permanently disabled crippled soldiers, and submitted it to the War Office. The chief idea of the scheme was that a central authority to control all orthopædic cases should be set up in London under the Chelsea Commissioners, who would appoint local authorities—in every case orthopædic surgeons of repute—to deal with the cases throughout the length and breadth of the United Kingdom. I pointed out that the scheme would only require to be of a temporary character, that it could be most economically worked, and that a great saving of public money, which would otherwise go in permanent pensions, could be thereby effected.

I have now published the scheme as an appendix to my "Notes on Military Orthopædics." Sooner or later some such scheme will have to be adopted. Why not now?—I am, Sir, yours faithfully,

PAUL BERNARD ROTH.

Harley-street, W., March 4th, 1916.

Obituary.

CHARLES LAKIN, L.R.C.P. EDIN., L.F.P.S. GLASG., L.S.A.

BY the death of Mr. Charles Lakin, which took place on Feb. 10th at the age of 67, Leicester loses one of its oldest medical practitioners. Mr. Lakin was educated for the medical profession at Queen's College, Birmingham, and after taking his Edinburgh qualification was for a time resident obstetrician at Queen's Hospital. He commenced practice in Leicester in 1873 and quickly attained a prominent position professionally, while he took a keen interest in public affairs, and especially in public health questions. For the last 30 years he had been a member of the town council and in 1892 was appointed an alderman, a position which he held at the time of his death. He was vice-chairman of the sanitary committee for many years, and was also chairman of the isolation hospital committee. He was mayor of Leicester in 1908, an office that he filled with dignity and credit to the town. Of quiet, unassuming character he spoke seldom, but rendered excellent service by bringing his medical knowledge to bear on questions relating to the welfare of the rapidly growing borough. Among his multifarious duties he found time to carry on the work of the honorary medical officership of the Wycliffe Society of the Blind, a society which looks after the interests

[1] THE LANCET, May 1st, 1915; see also THE LANCET, June 26th, 1915.

of over 200 blind persons. His patients found him full of kindness and sympathy and many will mourn the loss not only of a trusted medical adviser but of a valued friend.

NATHANIEL EDWARD ROBERTS, M.B., C.M. EDIN., D.P.H. R.C.P.S. EDIN.

Dr. N. E. Roberts, of Liverpool, whose death occurred recently at the age of 63, graduated at the University of Edinburgh in 1879. He proceeded to Liverpool and obtained an appointment under the Toxteth guardians as public vaccinator, which, together with the position of teacher of vaccination for the Local Government Board and lecturer on infectious diseases at the University of Liverpool, he held for many years. In 1892 he was appointed visiting physician to the City Hospitals, Grafton-street and Parkhill. He held these posts for a number of years, at the same time acting as assistant port medical officer. He was an enthusiastic Territorial officer, and held the rank of Lieutenant-Colonel in the Royal Army Medical Corps. Dr. Roberts was at all times a keen supporter of any measure having for its object the promotion of public health, and his natural enthusiasm found ample scope in this direction. He was a man of genial and kindly temperament, and leaves a large circle of friends to mourn his loss. His wife predeceased him, and he leaves no family.

JOSEPH PEARCE BUDGETT WILLS, M.D., M.S. DURH., M.R.C.S. ENG.

Dr. J. P. B. Wills, who died at Bexhill, Sussex, on Feb. 28th, had practised in that town for considerably over 30 years. He had made a special study of phthisis, and in 1902 was the joint author of an essay on the erection of a sanatorium for tuberculosis, for which he was awarded honourable mention by H.M. the King's Advisory Committee. In addition to a large general practice, he found time to take a very active part in local affairs, and thus was closely identified with all the phases of growth and progress of Bexhill, where for many years he was a member of the governing body. There were few movements, either of a religious, social, or philanthropic character with which Dr. Wills was not associated, and his death will be regretfully felt, not only by a wide circle of patients but in many other directions. He was 63 years of age, and received his medical training at St. Mary's Hospital, London, qualifying M.B., M.S. Durh. in 1880, and proceeding to the M.D. degree in 1886.

EDWARD BERDOE, L.R.C.P. EDIN., M.R.C.S. ENG.

Edward Berdoe, who died on March 2nd at his house in Victoria Park at the age of 79, had been a general practitioner in Hackney for 40 years and was referee for two life assurance companies. Outside the circle of his family and practice he was best known as a passionate opponent of medical research, but he was an ardent Browning student and a member of the Committee of the Browning Society during its whole existence. "The Browning Cyclopædia" (1891) and "Browning and the Christian Faith" (1896) were two of many of his appreciations of the poet with whose moral teaching he was in intimate sympathy. He wrote also a book entitled "Origin and Growth of the Healing Art: a History of Medicine in all Ages and Countries" (1893).

The War.

THE CASUALTY LIST.

THE following names of medical officers appear among the casualties announced since our last issue:—

Died.

Captain W. H. Nicholls, R.A.M.C., received his medical education at Guy's Hospital, graduating in 1914, and thereupon joined the R.A.M.C.

Brevet-Colonel A. H. Moorhead, I.M.S., Assistant Director of Medical Services, graduated at Edinburgh University in 1893, and went to France in command of the Indian Field Ambulance with the 2nd Indian Cavalry Division. He returned from the front in December, on being taken ill, and died at Batheaston.

Wounded.

Captain G. E. C. Cole, Canadian A.M.C., attached to Princess Patricia's Canadian Light Infantry.

Captain S. S. Greaves, R.A.M.C., 2nd West Riding Field Ambulance (T.F.), attached to the 4th Battalion Duke of Wellington's Rifles (T.F.).

Lieutenant H. O. Gough, R.A.M.C., attached to the 8th Battalion Royal West Kent Regiment.

DEATHS AMONG THE SONS OF MEDICAL MEN.

The following sons of medical men must be added to our lists of those who have fallen during the war:—

Second-Lieutenant D. R. Christie, Royal Field Artillery, second son of Dr. D. Christie, C.M.G., of Manchuria.

Second-Lieutenant A. L. Robinson, 173rd Tunnelling Corps, Royal Engineers, eldest son of the late Surgeon-Major M. Robinson, I.M.S.

Lieutenant C. W. Beale, 7th Battalion Royal Sussex Regiment, son of Dr. E. C. Beale, of Rotherfield, Sussex.

Captain A. E. K. Mason, 7th Battalion (attached to the 8th) Royal Fusiliers, only son of Dr. A. Mason, of Walton-on-Thames.

THE CALLING UP OF MEDICAL MEN.

We published last week an official announcement from the War Office that medical men who have undertaken to accept commissions in the Royal Army Medical Corps, if such commissions should be offered, will not be taken for general service. This announcement is confirmed by the following Army Council Instruction dated March 3rd, 1916:—

485. *Procedure with regard to Medical Practitioners under the Group System and Military Service Act, 1916.*

1. A.C.I. 148 of 1916, is hereby cancelled and the following substituted.

2. The Army Council consider that no qualified medical practitioner who is willing to accept, if offered, a commission in the Royal Army Medical Corps, should be accepted as an ordinary combatant. The Central Medical War Committee and the Scottish War Emergency Committee have organised, with the consent of the Army Council, a scheme under which a medical practitioner can enrol himself as willing to accept a commission in the Royal Army Medical Corps if offered him, and these Committees issue to all such practitioners a certificate of enrolment. Medical practitioners can also offer their services to War Office direct and, if accepted, receive a letter of provisional acceptance.

3. No qualified medical practitioner who has been attested under the Group System, or who is in one of the classes under the Military Service Act, 1916, is to be called up for service with the colours till after 31st March, 1916. If a man who has been called up for service before that date proves to be a qualified medical practitioner he should be sent back to his home.

4. After the 31st March, 1916, the procedure will be as follows:—(*a*) If a qualified medical practitioner who is attested under the Group System, or is in one of the classes under the Military Service Act, 1916, and who is enrolled under the scheme of the Central Medical War Committee, or the Scottish War Emergency Committee, or has been provisionally accepted by the War Office, receives a notice

paper calling him up, he should return it to the recruiting officer, together with his certificate of enrolment or W.O. letter. The notice will then be cancelled and the practitioner will remain in reserve until selected for a commission in the Royal Army Medical Corps. (*b*) If a medical practitioner who has attested under the Group System, or is in one of the classes under the Military Service Act, 1916, but who has not enrolled under the scheme of the Central Medical War Committee, or the Scottish War Emergency Committee, nor been provisionally accepted by the War Office, he will be dealt with in the ordinary course.

It is to be noticed that medical men will not be called up, whether by reason of attestation, or under the Military Service Act, until the last day of this month, a valuable concession, as it gives men time to consider the situation, which has for long been clearly impending, but which, for this reason or that, was not recognised in its seriousness by many people. This position has been very fully discussed at a meeting of the Central Medical War Committee. It was then resolved that the Executive Subcommittee should be instructed to consider at once in what way the enrolment scheme can be pushed to the maximum success, and to take steps to ensure that result. At the meeting of the subcommittee, which took place on March 3rd, action was taken in accordance with the reference to them. It was resolved:—

1. That the subcommittee proceeds to deal with the whole number of practitioners under 45 at once, giving special attention to the importance of securing the enrolment before March 31st, 1916, of single men under 41.
2. That a communication be sent out at once to all unenrolled practitioners.
3. That steps be taken for an immediate canvass of all practitioners under 45, and a publicity campaign to be conducted simultaneously.

It was further resolved that the campaign for securing enrolment should be conducted on the lines of a Parliamentary campaign, by a strenuous canvass, having a time-limit of March 31st next, and in accordance with this resolution two special Canvassing Committees were appointed, one for London and one for the provinces. The personnel of these committees was agreed upon by resolution as follows:—

That the Canvassing Committee for London consist of the London members of the Executive, with power to co-opt such other members as they think fit.

That the Canvassing Committee for the Provinces consist of the following members of the Central Medical War Committee: Lieutenant-Colonel Sir James Barr, Lieutenant-Colonel R. A. Bolam, Major Russell Coombe, Major W. J. Greer, Major Albert Lucas, and Dr. T. Jenner Verrall, together with the following representative practitioners from the provinces: Dr. Dearden (Manchester), Dr. Devis (Bristol), Dr. Don (Newcastle-on-Tyne), Dr. Adam Fulton (Nottingham), Dr. E. A. Starling (Tunbridge Wells), Dr. H. J. Starling (Norwich), and Dr. Wherry Willson (Bradford).

At this meeting it was reported by the secretaries that 1501 commissions had been posted up to Feb. 26th, being an increase of 37 since the last meeting of the subcommittee, and an average of 48·4 per week since July 17th, 1915, when the work commenced, while 383 applications for commissions were waiting to be posted. Up to March 3rd, 1916, 1642 certificates of enrolment had been issued, an increase of 435 since the last meeting.

To be enrolled by no means suggests that a man is bound to be called up. Many, probably the majority, of the enrolled will never be called up at all, though we have authority which can hardly be gainsaid for saying—or rather for repeating—that the medical profession ought as a profession to be prepared for any emergency that may arise. The circular which follows deals with the difficulties commonly felt by medical practitioners on the score of enrolment.

THE ENROLMENT SCHEME: ANSWERS TO COMMON OBJECTIONS.

The following circular has been issued by the Central Medical War Committee to canvassers:—

1. No one can say how long the war may last and therefore how many doctors may be required in the future, but it is the duty of the profession to be prepared for any calls that may be made upon it.

2. The only fair way to secure this—fair to the profession as well as to the public—is to get every man of military age to signify his willingness to accept military service if and when it is thought that his services should be offered. In return for this undertaking the Central Medical War Committee, in consultation with the local Medical War Committees, promises that its calls shall be made with due regard to professional and personal difficulties, which the enrolled man will have full opportunity of placing before the Committee. Inconvenience in most cases and hardship in many cases are inevitable, but these can be alleviated if proper arrangements are made before a man is asked to undertake military service.

3. Such arrangements can only be made equitably if the field of selection is as wide as possible. There are, roughly speaking, about 6000 medical men under 45 in England and Wales. If 2000 of these should during the course of the war be required it would obviously be more fair to all concerned if the selection were made from the whole 6000 rather than from three or four thousand. It is extremely unlikely that every man who enrols will be required. Moreover, some would not be accepted by the War Office on physical grounds; others practise in areas from which they could not possibly be spared; others hold public appointments from which it would be difficult to release them without danger to the health of the community. Others have financial liabilities which would entail their ruin if they were called up. But every man who enrols helps to make it easier for others to do the same and more difficult for them to decline, and thus renders it possible to select the doctors who are wanted and can go with the minimum of hardship.

4. The credit of the whole profession is at stake in making this Enrolment Scheme a success. Up to now the profession has been left to organise itself to meet the calls of the country and everyone acknowledges that it has done it splendidly. The Central Medical War Committee believes that by energetically carrying out the present system of enrolment the profession will be able, so far as the supply of medical men is concerned, to see the war through without compulsion or official interference.

5. The following are the stock objections against enrolling, which you may have to meet with brief answers:—

Objection (*a*): I am physically unfit.

Answer: That is no reason why you should not have your certificate of enrolment which will be a proof that you are willing to go if the War Office needed and would take you. If you are called upon to join it will rest with the military authorities to accept or decline you. Further, the certificate of enrolment will enable you to be used in local military service if such service be required. Men holding the certificate may be employed in part-time military work, irrespective of their age, whereas other men will not be employed on such work unless they are over 45.

Objection (*b*): I have financial liabilities which make it almost impossible for me to go.

Answer: So have probably two-thirds of the men who will enrol. So have thousands of the men under the Derby scheme—yet they attested. You are assured of all your circumstances being considered at the time when your name comes up as a possible applicant for the R.A.M.C., and every endeavour will be made to leave till a later time or refrain altogether from calling up those who would obviously suffer greatly by going. But if you decline to take your chance you may be sure that some other man, with probably greater financial difficulties but a keener sense of duty, will have to go in your stead. The Local Medical War Committee of your area will endeavour to make arrangements to meet your difficulties as far as they can be met by a professional body. It is suggested that one of the best ways would be for practitioners with overlapping practices to enter into a temporary partnership for the duration of the war and a period after, thus pooling finances and sharing loss, if any. The Local Medical War Committee would be glad to discuss this matter or any alternative plan for protecting your interests if called up with you and any of your neighbours who may think of entering into such an arrangement.

Objection (*c*): I have a partner, or an assistant who is on military service; or I am doing work for a neighbour on active service.

Answer: Enrol all the same. Your position is bound to appeal to the Central and Local Medical War Committees when they decide who are the men who should be asked to go.

Objection (*d*): I cannot be spared. If I went away my work could not be done.

Answer: That is a question that should be settled by other people. You are not an unbiassed judge. But it is a necessary part of the scheme that when a man is asked to go arrangements must be made for carrying on his work. If your neighbours cannot do it, and if a substitute cannot be found, you will not be called up. But you should certainly enrol along with the rest.

Objection (e): I hold a public appointment from which the authority employing me considers I cannot be spared.

Answer: The Central Medical War Committee is in close touch with the Government departments concerned in medical practice, and you will not be called up without the consent of the Government department and of any local authority which are concerned in the work on which you are engaged.

Objection (f): I am on a hospital staff.

Answer: The Central Medical War Committee is as anxious as you can be to prevent hospital staffs from being unduly depleted. The Committee has already circularised the staffs of all the voluntary hospitals in England and Wales asking them to consider what are their minimum requirements in the way of staff. On this question the Central Committee expects to receive valuable assistance from the Local Medical War Committees in the provinces. For the consideration of the whole question as it affects London it is proposed to set up a Special Advisory Committee, and the opinions of this Committee will no doubt enable the calls on the members of staffs of hospitals in London to be made with as little dislocation of the work of those hospitals as is possible in the circumstances. The individual member of a staff should enrol on the distinct understanding that the circumstances of his hospital will be duly considered before he is asked to undertake military service.

Objection (g): I am already doing some form of military work—e.g., attending at V.A.D., Red Cross, or some local military hospital.

Answer: The military medical work of primary importance is securing the fitness of the fighting men. This can only be done by medical men with the armies and by such work alone can the war be won. Home hospital work can be done by the older men. Further, if the time comes when you are asked to take military service and you have any doubt as to whether you will be doing better military work by staying at home or by going into the army, put the question to the Director-General of the Army Medical Service.

Objection (h): I have already served for 12 months.

Answer: That is no reason why you should not enrol. That circumstance will be taken into account when your case is considered, and would be a good reason for expecting other men to go before you are asked to serve again. You have previously set a good example by undertaking military service. Set another one to your neighbour by enrolling.

Objection (i): I do not think I should be asked to join the R.A.M.C., because I am not convinced that the most economical use is being made of men who are already in the service.

Answer: Probably most of the men who have joined the service would agree with you, but that did not prevent them from joining, and it does not prevent most of them continuing in the service, even after they might retire. War cannot be conducted without waste. Men must be ready in reserve for any contingency. They may seem idle and wasted, but they are doing their duty by being there for service when required. If every man refused to join the army until it was being run in a way which satisfied his ideas as to the economical use of men and material there would be no army at all.

Objection (j): I have special experience or qualifications, and I don't care to join unless I shall be sure they will be used.

Answer: It is impossible to give a guarantee that every man will be used only in the special line to which he has been accustomed. A large number of the men with special qualifications are used in their special work, but every doctor must be prepared to do doctor's work of any kind, and men of the highest qualifications and long experience have not been ashamed or unwilling to turn their hand to routine work when special work was not available.

Objection (k): I am not content to join as a lieutenant. My position or experience should be recognised by higher rank.

Answer: You are only asked to join as a temporary officer, and the distinctions of rank matter much less in your case than they would if you were joining the R.A.M.C. as a life career. Some thousands of men have now joined as lieutenants, and it would be impossible to ask the authorities to give preferential treatment to men who are now joining. You will find lots of men as well qualified and with as much experience as yourself serving as lieutenants and proud to do so.

Objection (l): The pay is not sufficient.

Answer: It cannot be denied that most men in practice who take military service will be making a monetary sacrifice, and you must be prepared to do the same in common with very large numbers of your fellow-countrymen. But the pay is good compared with that offered to people who join the army as combatant officers. The pay amounts to £500 per annum—namely, 24*s.* a day and a gratuity of £60 at the end of the year. There is in addition either rations or a daily allowance in lieu of rations, and £30 for uniform. Your Local Medical War Committee will do all that a professional body can to protect your interests while you are away if you are selected to go. It must not be forgotten that the contract is for one year only, and you can renew it or not at the end of that time as you think fit. This does not apply to any other form of service in the army.

Objection (m): I am afraid that if I enrol I may be called up arbitrarily by the Committee without due consideration of my personal and professional circumstances.

Answer: The C.M.W.C. is a purely voluntary one composed of representatives of practically every section of medical men. It was set up in the first instance by the Representative Body of the B.M.A., but original members were put upon it who were not members of the Association, and power was given to it to co-opt others. The result is that it now consists of representatives of practically every medical interest. Representatives of the three Government Departments concerned with the provision of medical attendance attend its meetings regularly. It is in close and constant coöperation with Local Medical War Committees all over the country. It is fully recognised by the Director-General as his medium for communicating to the profession the medical needs of the Army. The Committee, therefore, is in a better position than any other body could be to consider the requirements of the War Office and the Government Departments and those of the civilian population. In any case you must remember that no other body of the kind has attempted to do this duty, and the Committee feels it has established a right to ask the members of the profession to support it in the great task it has undertaken.

ELIGIBILITY OF ENROLLED MEDICAL PRACTITIONERS FOR ARMY DUTY IRRESPECTIVE OF AGE.

The Army Council has issued the following instruction dated March 2nd, 1916:—

475. *Eligibility of Medical Practitioners for Army Duty, Irrespective of Age when Enrolled with Certain Committees.*

With reference to W.O. letter X/Misc./246 (A.M.D. 1) of 27th August, 1915, medical practitioners who have enrolled with the Central Medical War Committee, or the Scottish Medical Service Emergency Committee, for service with the Army, and are in possession of a certificate of enrolment with either Committee, may be considered eligible for Army duty irrespective of their age.

24/Gen. No./4749 (A.M.D. 1).

Copies of this instruction have been issued to G.Os.C.-in-C., and G.O.C. London District.

NEW FRENCH DENTAL SERVICES.—Mr. F. Newland-Pedley sends us a cutting from *Le Temps* elaborating the notice of the foundation of a dental service in the French army touched upon by our Paris correspondent last week. 1000 qualified dentists will be gazetted adjutants—500 at the front and 500 in the depôts—and associated as far as possible with the army doctors and pharmacists. There will be provided with each group of stretcher-bearers a mobile dental staff who can attend to the men's teeth in their cantonments. Dental clinics are to be attached to each hospital centre, and a sufficiency of mechanical institutes provided up and down the country. The American Hospital in Paris at the Lycée Pasteur has been a pioneer in this work, the fruits of which are now becoming evident. A further recent decree authorises the Ministry of Marine to recruit a staff of dental surgeons to be attached to the Naval Medical Service during the war.

R.A.M.C. (T.) JOURNALS.—Among the journals intended to amuse the personnel and patients of ambulances and hospitals, and to attract outside subscriptions for the particular institutions, we welcome the latest newcomer, the *Review* of the 2/1st South Wales Mounted Brigade It is funny even to the wrappers, which contain burlesque advertisements. The cost of this review is 2*d.*, and we congratulate the editor, Lieutenant-Colonel Herbert Jones, S.M.O., Bulcamp, Blythborough, Suffolk, on its production. We have also received the March issue of the *Gazette* of the 3rd London General Hospital, Wandsworth, which in addition to its interesting letterpress

maintains its prestige for humorous black-and-white drawings. Among the excellently reproduced photographs is one of a bronze bust of Lieutenant-Colonel Bruce Porter, R.A.M.C. (T.), the Commanding Officer, by Sergeant Derwent Wood, a well-known sculptor and a member of the 3rd London General Hospital Staff.

WAR HOSPITALS.—The Marquis of Huntly has placed Aboyne Castle at the disposal of the authorities for use as a hospital for wounded soldiers, with an accommodation of 100 beds. The Peak Hydro Hotel is being converted into a hospital to accommodate more than 300 wounded Canadian soldiers. Facilities have been granted by the town council for the use of the Buxton waters.

Mr. James Berry, Mrs. F. M. Dickinson Berry, M.D., and the whole staff of the Royal Free Hospital Serbian unit have reached England in safety. Dr. J. B. Christopherson, of Khartoum, accompanied them. Mr. Berry, as our readers will remember, was last seen by a chance traveller nailing on the roof of a new slaughter-house at Vrnjatchka Banja as the Austrians were approaching. The party returned by Vienna and the Vorarlberg, spending the usual ten days detention at the frontier town of Bludenz. They had nothing to complain of at the hands of the Austrians.

AFTER being prisoners of war since November, Mr. W. H. G. Aspland, who was in charge of the hospital in Serbia maintained by the Wounded Allies Relief Committee, accompanied by Mrs. Aspland, Dr. Slater, and three nurses, arrived in London last week.

THE Scottish Red Cross has just completed at Glasgow its first hospital ship, *St. Margaret of Scotland*, for the Mediterranean service.

THE BELGIAN DOCTORS' AND PHARMACISTS' RELIEF FUND.

THE WEEK'S SUBSCRIPTIONS.

THE subscriptions to the Belgian Doctors' and Pharmacists' Relief Fund received during the week have been as follows:—

	£	s.	d.
New Hebrides Missionaries—			
Dr. E. Mackenzie ...	2	0	0
Rev. F. G. Bowie ...	1	0	0
Per Dr. H. L. McKisack—			
Dr. Haydn Mulholland	1	1	0
Dr. R. M. Fraser ...	2	2	0
Dr. G. D. H. Carpenter (eleventh donation, total £11)	1	0	0
B.M.A., Western Australia (per Dr. J. E. Ramsay, acting honorary treasurer) ...	6	6	0
B.M.A., New South Wales (per Dr. Crago, honorary treasurer), (total £792 3s.), Queensland Branch	32	3	0

Subscriptions to the Fund should be sent to the treasurer of the Fund, Dr. H. A. Des Vœux, at 14, Buckingham-gate, London, S.W., and should be made payable to the Belgian Doctors' and Pharmacists' Relief Fund, crossed Lloyds Bank, Limited.

ROYAL SUSSEX COUNTY HOSPITAL, BRIGHTON.—This hospital early placed its resources at the service of the country, and during last year 642 military cases were admitted. At the annual court of governors on Feb. 24th it was declared that the effect of the treatment of wounded soldiers in a great general hospital on the civil patients had been fortunate, while the chairman of the board of management (Mr. R. Ball Dodson) emphasised the fact that had it not been for the board's contract with the Government it would have been impossible to have retained a sufficient staff to run the hospital at its full capacity for civilians alone. Respecting civil patients, it was shown that whereas the cost per bed occupied had been greatly reduced the cost per patient had been markedly increased. This was explained by the great increase in the average length of stay of each in-patient, which had grown from 24 days in 1914 to 30 days in 1915. This six days' extra stay for each of between 2000 and 3000 patients had had a great effect on the waiting list, a matter which will receive the consideration of the board at an early date. The financial side of the annual report was considered satisfactory.

Medical News.

PETROL FOR DOCTORS.—The Medico-Political Committee of the British Medical Association have for some time been giving anxious consideration to the difficulties experienced, and likely to be increasingly experienced, by doctors in obtaining petrol for their cars or motor-bicycles. Several representations have been made to the Board of Trade on the subject. A special meeting of the Committee was summoned for Wednesday, March 8th, to confer with representatives of certain Government Departments concerned with the larger question of the supply of petrol for Government requirements generally and for the civil community. The Conference, which was necessarily confidential, dealt at length with several matters of great importance. The Government representatives indicated the necessity of reliable information being rapidly forthcoming as to the quantity of petrol actually needed month by month by the medical profession in the different parts of the country, if any effective action were to be possible to the Government for arranging, as was desired, that doctors should be secured their minimum requirements for fulfilling their duties to the civil community. Certain immediate steps were decided on with a view to obtaining that information forthwith. It was stated that the Government Departments entrusted with the question were anxious that the needs of the medical profession should receive special attention in any scheme which might be evolved for the distribution of petrol under any new conditions that might be set up. The Committee, whilst realising from the discussion the great practical difficulties that will have to be solved by any Government scheme for the community of the kind that seems to be contemplated, feel assured that the special case of the medical profession is being fully recognised in the responsible quarters, and the Committee will not cease to keep in close touch with any further developments.

The steps above mentioned will probably include the issue of certain inquiries to medical practitioners throughout the country, and it is hoped that, in the interests of each individual and of the profession as a whole, these questions, when received, will be answered fully and without any delay.

OPEN-AIR WARD FOR SICK CHILDREN'S HOSPITAL, ABERDEEN.—The Aberdeen Sick Children's Hospital, at present occupying temporary premises at Kepplestone House, has been supplied with a new open-air building, erected in the grounds, and it is hoped to move this ward to the new hospital when it is ready for occupation. The ward consists of a single-storey building of wood, 88 feet long, 20 feet deep, and 8 feet high from the floor to the eaves. It is divided into three compartments, an open ward at both ends, that in the middle being closed. The front to the sun is open except for the shutters, which are raised from the floor at will, but can only be raised half way to the roof, so that the front can never be entirely closed. The back of the open wards is walled, with windows, all opening, and here also ventilators which cannot be closed are placed under the eaves. The closed centre apartment is heated, and will be used for washing and dressing patients, for the convenience of the nurses, and service of meals from the kitchens in the main buildings, &c. The total cost of the ward is £650, and it is somewhat in the nature of an experiment with a view to the construction of the new Sick Children's Hospital, which might be developed upon the same lines, the whole hospital being made an out-door one, save for closed wards for medical cases requiring such. In this way much expense might be spared, and probably increased efficiency obtained.

PROPOSED DENTAL SCHOOL AT THE ROYAL COLLEGE OF SURGEONS IN IRELAND.—For several years past dental education in Ireland has centred round the Dental Hospital of Ireland. With the exception of a year's clinical work at a general hospital, and courses in anatomy and physiology at a medical school, students went through their entire course, mechanical, clinical, operative, and theoretical, at the Dental Hospital, but obtained their qualifications from the Royal College of Surgeons or one of the universities. Within the past few years both Trinity College and University College have established schools of dentistry,

but they concerned themselves only with the theoretical teaching, and they coöperated with the Dental Hospital in the courses of study. The Council of the Royal College of Surgeons is now considering the advisability of estab ishing a school of dentistry which would give all the instruction, clinical as well as mechanical, required in the curriculum. It would, of necessity, mean the establishment of a dental hospital or clinic under the control of the College, a project fraught with many difficulties. Special considerations in the College also present difficulties, and the proposal is made to use the museum hall for the purposes of the dental school. The museum is one of more than merely historic interest, and it is to be hoped that, if it is to be moved, due care will be taken not only that the exhibits are properly preserved, but that they remain kept accessible to those who wish to study them.

THE DANISH CHILD AT SCHOOL.—At a meeting of the Childhood Society, held on March 2nd, Mr. A. E. Hayes, travelling scholar in Denmark, 1903-04, delivered a lecture on the Danish child at school. He said that in German experience postponement of school entry to seven years of age had proved beneficial to the child's physical condition. Much attention was devoted in Denmark to the subject of physical culture, but many scholars confessed to a feeling of weariness during the lessons which followed the exercises, due, no doubt, to their having been taken in excess. During the discussion reference was made to the fine designs of the new Copenhagen schools, especially in the matter of lavatories and facilities for nature-study. With regard to school hygiene, a nurse made daily visits to a school until she was satisfied that every child was of the required degree of cleanliness. A good deal of the attention of the nurse was devoted to the heads of the children, and as the necessary measures were taken on the spot there was not the amount of resistance to the treatment there which was encountered in Britain. The duty of the medical officer was to treat minor ailments rather than to inspect. Denmark was practically free of poverty-stricken slums, and the institution of the daily bath following the gymnasium exercise exerted a good influence in the direction of the wearing of clean clothing. In that way hygienic teaching was taken to the homes, and was proving very beneficial.

THE LATE MR. C. E. COLLINS.—Charles Edward Collins, M.R.C.S. Eng., L.R.C.P. Lond., had practised for over 30 years at East Grinstead and his death, which occurred on March 2nd after a few hours' illness, came as a real shock in the district, where he took a prominent part in local affairs. Mr. Collins was born in India in 1850, studied at University College Hospital, London (where he was subsequently house surgeon), and became M.R.C.S. Eng. in 1874. For 18 years he was surgeon to the local Volunteer Corps, retiring in 1894 with the rank of surgeon-major; and at the time of his death was the senior medical officer of the East Grinstead Queen Victoria Cottage Hospital.

AN INTERESTING PRESENTATION.—The former Bishop of Bristol (Dr. Forrest Browne) has presented to the Bristol Museum and Art Gallery an original licence (upon parchment) granted by the Bishop's Vicar-General to Henry Jones to practise surgery in Bristol. It is dated 1672.

Mr. D. D. Main, F.R.C.P., F.R.C.S. Edin., has received permission from the King to accept and wear the decoration of the Fourth Class of the Order of the Excellent Crop, which has been conferred upon him by the President of the Republic of China.

BOOKS, ETC., RECEIVED.

APPLETON, D., AND COMPANY London and New York.
Appleton's Medical Dictionary. Edited by Smith Ely Jelliffe, A.M., M.D., Ph.D.; assisted by Caroline Wormeley Latimer, M.D., A.M. Price 15s. net.

ARNOLD, EDWARD, London.
Physiology for Nurses. By W. B. Drummond, M.B., C.M., F.R.C.P. Edin. Price 2s. 6d. net.

BAILLIÈRE, TINDALL, AND COX, London.
Surgical Nursing and Technique. By C. P. Childe, B.A., F.R.C.S. Eng. Second edition. Price 3s. 6d net.

CASSELL AND CO., London, New York, Toronto, and Melbourne.
Diseases of the Nose and Throat. Second edition. A Textbook for Students and Practitioners. By Sir St Clair Thomson, M.D., F.R.C.P. Lond., F.R.C.S. Eng. Price 25s. net.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

The Care of Disabled Soldiers.

A SPECIAL subcommittee of the Statutory Committee under the Naval and Military War Pensions Act, to deal with the provision for the care of disabled officers and men, has been appointed.

Pensions to Discharged Sailors.

The Admiralty is in consultation with the Treasury as to the desirability of extending the Order in Council as to disablement pensions in the Navy so that it may apply to cases where disease has been "aggravated by the service," as well as to the cases where disease has been "contracted in the service." During the debate on Navy Estimates Mr. MACNAMARA, the Secretary to the Admiralty, emphasised the sympathy with which the medical staff approached such questions.

HOUSE OF COMMONS.

WEDNESDAY, MARCH 1ST.

Stocks of Opium.

Replying to Mr. S. SAMUEL, Mr. BRIDGEMAN (representing the War Trade Department) said: Opium is of special importance for the treatment of the wounded, and in view of the great demand for this drug and of the special conditions affecting the usual sources of supply at the present time it is not considered that the present and prospective stocks are in excess of what may reasonably be regarded as necessary for the requirements of the country. There is no foundation for the suggestion that there has been any restriction of exports in the interests of the manufacturers of morphia, nor is it considered that the policy of the War Trade Department in safeguarding home supplies will have the effect of diverting the trade to other countries.

Tuberculosis in the Army.

Mr. ANDERSON asked the Under Secretary for War how many of the 2770 soldiers invalided out of the service in 1915 on account of tuberculosis were found under the terms of the Royal Warrant to be entitled to a pension; and how many were not so entitled.—Mr. TENNANT answered: 1641 were awarded pensions and 1129 claims were not accepted.

THURSDAY, MARCH 2ND.

Medical Rejections in Glasgow.

Mr. WATT asked the Under Secretary for War whether he had yet had any information as to the destruction at several of the recruiting stations in Glasgow by the recruiting sergeants and by the medical examiners of the evidence of medical unfitness since August 14th of men calling at these stations for purposes other than enlistment; if so, what action he proposed to take; and were these recruiting sergeants and medical men to continue as agents of his department.—Mr. TENNANT answered: Where a man has not been attested the certificate of rejection will be returned to him. Instructions have been issued that the rejection certificate of a man who subsequently attested and was placed in category "B," which consists of men previously rejected on account of eyesight or some slight physical defect, is not to be destroyed, but should be preserved by the recruiting officer and filed with the man's documents.

Medical Students and War Service.

Mr. PRINGLE asked the Under Secretary for War whether it was the intention of the Government to allow fourth and fifth year medical students to complete their curriculum and thus qualify for commissions in the Royal Army Medical Corps.—Mr. TENNANT replied: Medical students in their fourth and fifth years of study and those in their third year of study whose examination takes place during the winter session must either attest under the group system or become liable to the Military Service Act. The fourth and fifth year students will not be called up, and if the third year students pass their examination they also will not be called up, but if they fail they will be called up. Students who have not attested under the group system, and who in consequence become liable to the Military Service Act, must appeal to the local tribunal if they desire exemption.

Soldiers' Wives and Institutional Treatment.

Captain CASSEL asked the Financial Secretary to the War Office (1) whether he was aware that in many districts soldiers' wives requiring treatment were compelled to go to an infirmary or a sanatorium by reason of hospital accommodation not being available and thereby lost their separation allowances and were treated as paupers, and whether he proposed to take any action in the matter; and (2) whether he would consider the advisability of allowing soldiers' wives entering an infirmary or sanatorium to retain their separation allowances, a reasonable amount out of such

allowances being paid to the guardians or other authority.—Mr. FORSTER wrote in reply: When a soldier's wife leaves her home under the conditions named, the allowances payable to the children are raised to the motherless-rate, but if the institution is supported out of the rates no payment in relief of rates is made unless the soldier was himself making one. In that case it is continued within the amount available. If the institution is not supported out of the rates there is no bar to payment. The soldier's allotment is paid to the wife while in a rate-supported institution for her personal use. These arrangements appear to me to meet the situation adequately.

Cocaine Smuggling in India.

Sir J. D. REES asked the Secretary for India whether evidence existed to the effect that cocaine was smuggled to India in Austrian steamers before the outbreak of war, and whether cocaine dens had, since the suppression of opium, been established in most of the big Indian cities.—Mr. CHAMBERLAIN (in a written answer) replied: Cocaine has in the past been smuggled into India by Austrian and German and other steamship lines. The habit in a more or less furtive form exists in Indian seaport towns and in a less degree in the largest inland cities, but so far as my information goes it is unconnected with the opium habit or with measures taken to suppress the latter.

The National Insurance Act in Scotland.

During the discussion on the Vote of Account, Mr. CURRIE called attention to the administration of the National Insurance Act in Scotland and to the position of societies there. He urged the exercise of economy in administration. In Scotland the Insurance Committees might well be abolished and the administration of the tuberculosis benefit handed over to the public health authorities.

Mr. C. ROBERTS (representing the National Insurance Commissioners) said that as compared with the estimates of the previous year there was a reduction of £101,250 on the Scottish Insurance Commission. On the four National Insurance Commissions and the Joint Committee the saving was £875,000. Therefore the estimates this year did show a very considerable reduction. It was not a reduction due to some changes of method or to some alterations in the basis of provision, but there were real reductions in the cost of administration, in restriction of services, and in carrying on the existing services at a cheaper cost. He asked honourable Members to moderate their apprehensions as to what they called the partial insolvency of the Act. The Act was not insolvent. It was at the present time piling up large reserves of money, and if any particular society did get into difficulties there were means, by levies and so on, by which it could be prevented from becoming bankrupt. He regretted talk about the bankruptcy of the Act because it did give rise to misapprehensions by people who could not appreciate the real financial position. The Commissioners had before them the report of the Committee on Retrenchment which suggested certain lines of economy, and a committee was sitting at the present time with a view to discover what means could be taken to reduce the cost of the Act and to simplify administration.

TUESDAY, MARCH 7TH.

The Tuberculosis Order, 1914.

Mr. HOGGE asked the Secretary for Scotland whether the Board of Agriculture was not bringing the Tuberculosis Order of 1914 into operation during the continuance of the war; whether he had received resolutions from any Scottish boroughs thereanent; what steps he proposed to take to protect the public; and whether, if the Order was not enforced, he proposed to enforce any modified form of Order.—Mr. ACLAND (Secretary to the Board of Agriculture) answered: Yes. The Board has decided to maintain the suspension of the Order until after the war. The only report which the Board had received against this decision was from the Edinburgh city council, which suggested that for the protection of public health a modified form of Order might be brought in. The Order, however, does not lend itself to modification on the lines suggested by the city council.

Medical Standard of Recruits.

Mr. WATT asked the Under Secretary for War whether his department was issuing instructions to the medical examiners under the Military Service Act, 1916, to retain the same standard in passing men into the army, in view of the fact that these agents of the War Office were now passing men who formerly would have been considered quite unfit for soldiers.—Mr. TENNANT replied: Exactly the same standard is observed in respect of all classes of men coming before army medical authorities for examination whether they report themselves for service under the Military Service Act or come forward voluntarily. Recruits are now, however, and have been for some time past, graded in different categories according to their suitability for various forms of military service.

In reply to Mr. ANDERSON, Mr. TENNANT stated that no man was accepted for the army unless he was considered medically fit to serve in some capacity.

Cerebro-spinal Meningitis in Portsmouth Command.

Mr. NEVILLE asked the Under Secretary for War how many cases of cerebro-spinal meningitis there had been among soldiers quartered in the district of the Portsmouth Command, and what proportion of the same had proved fatal; and whether any and what steps had been taken to guard against any spread of the disease.—Mr. TENNANT said in reply: The figure for the Portsmouth district medical administrative area, which includes the Portsmouth garrison, Isle of Wight, Winchester area, Dorsetshire area, and Portland defence, including Weymouth, is 31. The number of deaths has been 8. Special measures are carried out under an organisation set up 15 months ago to guard against the spread of the disease. These consist of isolation of the patient, disinfection of the patient's clothing, &c., segregation and special medical treatment of contacts and carriers.

Rations Allowance to Dental Officers.

Sir C. KINLOCH-COOKE asked the Financial Secretary to the War Office whether he was aware that medical officers on home service received an allowance for rations, but the same privilege was refused to dental officers, and could he see his way to place dental officers on the same footing as medical officers in this respect: and, if not, would he explain why any discrimination was made.—Mr. FORSTER answered: Dental officers at home are not entitled under the terms of their agreement for service to ration allowance, but I will further consider the discrepancy to which my honourable friend draws attention.

Medical Officers at Aviation Schools.

Mr. MACNAMARA (Secretary to the Admiralty), in reply to Mr. LEWIS HASLAM, said: In all schools of aviation where trial flights take place there is a naval medical officer, except at Redcar. At this latter place the Admiralty surgeon and agent at Redcar was responsible for the care of the flying station. In consequence, however, of representations from Redcar as to the need of a full-time medical officer at that establishment an active service medical officer has been nominated.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.

WHITE, S. B., M.B., Ch.B. Oxon., has been appointed Certifying Surgeon under the Factory and Workshop Acts for the Lyndhurst District of the county of Hants.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).
When the application of a Belgian medical man would be considered the advertisers are requested to communicate with the Editor.

BELGRAVE HOSPITAL FOR CHILDREN, Clapham-road, S.W.—Resident Medical Officer for six months. Salary at rate of £100 per annum, with board, residence, and washing.

BRISTOL GENERAL HOSPITAL.—Casualty House Surgeon for six months or three months. Salary at rate of £175 per annum, with board, residence, &c.

BRISTOL ROYAL INFIRMARY.—House Physicians and House Surgeons. Salary at rate of £120 per annum, with board, apartments, and laundry.

BURNLEY, VICTORIA HOSPITAL.—House Surgeon. Salary £160 per annum, with residence, board, and washing.

BURY INFIRMARY.—Junior House Surgeon. Salary £150 per annum, with board, residence, and washing.

CAMBRIDGESHIRE ASYLUM, Fulbourn, near Cambridge.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with board, lodging, washing, and attendance.

CARDIFF, KING EDWARD VII.'s HOSPITAL.—Two House Surgeons for six months. Salary at rate of £140 per annum each, with board, residence, and laundry.

CITY OF LONDON HOSPITAL FOR DISEASES OF THE CHEST, Victoria Park, E.—Gentleman to supply place of Members of Out-patient Staff of Physicians. Salary 1 guinea per attendance.

DOWNS SANATORIUM.—Assistant Medical Officer, unmarried. Salary £250 per annum, with usual residential allowances.

DUDLEY, GUEST HOSPITAL.—Senior Resident Medical Officer. Salary £150 per annum, with residence, board, and washing. Also Assistant House Surgeon for six months. Salary £120 per annum, with residence, board, and washing.

GUILDFORD, ROYAL SURREY COUNTY HOSPITAL.—House Surgeon. Salary £150 per annum, with board, residence, and laundry.

HUDDERSFIELD ROYAL INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with board, residence, and laundry.
LEEDS PUBLIC DISPENSARY.—Female Resident Medical Officer. Salary £130 per annum, with board, residence, and laundry.
LIVERPOOL, DAVID LEWIS NORTHERN HOSPITAL.—One House Physician and two House Surgeons for six months. Salary at rate of £150 per annum, with board, &c.
METROPOLITAN ASYLUMS BOARD.—Temporary Dental Surgeon. Salary £350 per annum, with travelling expenses and luncheon daily when on duty
NORFOLK, HEMPTON, FAKENHAM, 2/1ST SOUTH MIDLAND MOUNTED BRIGADE.—Three Medical Officers.
NOTTINGHAM CITY ASYLUM.—Senior Assistant Medical Officer, unmarried. Salary £300 per annum, with apartments, board, and laundry.
PUTNEY HOSPITAL, Putney Common, S.W.—Resident Medical Officer. Salary £150 per annum, with rooms, board, and laundry.
QUEEN'S HOSPITAL FOR CHILDREN, Hackney-road, Bethnal Green, E.—House Surgeons for six months. Salary £100 per annum, with board, residence, and washing.
ROCHESTER, KENT, ST. BARTHOLOMEW'S HOSPITAL.—Senior Resident House Surgeon. Salary as arranged.
SALISBURY GENERAL INFIRMARY.—Assistant House Surgeon. Salary £100 per annum, with apartments, board, lodging, and washing.
SHEFFIELD ROYAL INFIRMARY.—House Surgeon. Salary £100 per annum, with board and residence. Also Two Anæsthetists. Salary as arranged
UNIVERSITY OF LONDON.—External Examiners.
VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Surgeon Salary by arrangement, with board and lodging.
WIGAN, ROYAL ALBERT EDWARD INFIRMARY AND DISPENSARY.—Junior House Surgeon. Salary £150 per annum, with board, apartments, and washing.
WOMEN'S HOSPITAL FOR CHILDREN, 688, Harrow-road, W.—Anæsthetist. Salary £10. L.C.C. fees £75.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Brighouse, in the county of Yorks; and at Bishop's Stortford, in the county of Herts.

Births, Marriages, and Deaths.

BIRTHS.

FOULKES.—On March 5th, at Croydon-road, Beckenham, the wife of Peter Foulkes, M.B., of a son.
MATHEWSON.—On March 3rd, at Clun, Shropshire, to Dr. and Mrs. J. W. Mathewson, a son.
PANCKRIDGE.—On March 2nd, at Petersfield, Hants, the wife of W. P. Panckridge, M.B. Lond., M.R.C.S., L.R.C.P., of a son.
SHENNAN.—On Feb. 27th, at Aberdeen, the wife of Professor Theodore Shennan, of a son.

MARRIAGES.

HOOD—WOOD.—On March 3rd, at St. John's Church, Highbridge, Captain J. H. Hood, R.A.M.C., to Dorothy Maud, third daughter of Mr. James Wood, of Highbridge, Somerset.
PEDLER—JOHNSON.—On March 4th, at St. Joseph's, Highgate Hill, Captain Hubert C. G. Pedler, R.A.M.C. (S.R.), of 8, Montpelier-square, to Mary, daughter of Magnus H. C. Johnson, Esq., of Langdon Park-road, Highgate.
PHILLIPS—GANBRILL.—On March 3rd, at the Parish Church, Edgbaston, Birmingham, Captain Alfred Percy Phillips, R.A.M.C., to Norah, third daughter of N. S. Ganbrill, of Brockley, S.E.
SMERDON—WHITE.—On March 7th, at the Church of St. Mary Magdalene, Enfield, Edgar Wilmot Smerdon, M.D., F.R.C.S., Lieutenant, R.A.M.C. (T), to Hilda Mercédes, daughter of the late Mr. John White and Mrs. White, of Valencia, Spain, and London, N.
TOLLER—COURT.—On March 1st, at St. Peter's Church, Malvern Wells, Charles W. E. Toller, M.D., of Ilfracombe, to Ella Milward, elder daughter of the late Philip Wathen Court.
TWINING—BOSWELL.—On Tuesday, Feb. 29th, at Eaton Parish Church, Norwich, by Bishop Hamlyn, Edward Wing Twining, M.R.C.S., L.R.C.P., second son of the late Dr. A. H. Twining, of Salcombe, Devon, to Mildred, eldest daughter of S. H. Boswell, Esq., Eaton Norwich.
WILLIAMS—WADSWORTH.—On March 1st, at St. Luke's Church, Dr. Neville Williams, of Harrogate, to Louise, widow of J. E. Wadsworth, of Hill Crest, Harrogate.

DEATHS.

BLASSON.—On March 2nd, from pneumonia, Thomas Blasson, M.R.C.S., L.S.A., of Billingboro', aged 81 years.
COLLINS.—On March 2nd, at Redstede, East Grinstead, suddenly, Charles Edward Collins, M.R.C.S., L.R.C.P. Lond.
MAXWELL.—On March 6th, after an operation, Richard Drummond Maxwell, M.D., F.R.C.S. (Dick), of 7, Devonshire-street, W., Junior Obstetric Surgeon to the London Hospital, the dearly loved son of the late Richard and Margaret Maxwell, of 102, Oxford-gardens, W. Cremation at Golder's Green Crematorium on Thursday, March 9th, at 2.15. Will friends kindly accept this intimation.
MOORHEAD.—On March 1st, at Batheaston, while on sick leave, Brevet-Colonel A. H. Moorhead, I.M.S., A.D.M.S.
NICHOLLS.—On Feb. 22nd, in India, from accidental gunshot wound, W. Howard Nicholls, Captain, R.A.M.C., aged 24 years.
PITTOCK.—On March 5th, George Mayris Pittock, M.B. Lond., M.R.C.S., F.R.M.S., of Winton, Canterbury, aged 84 years.
THOMSON.—On March 6th, suddenly, at Oxford, Theodore Thomson, C.M.G., M.A., M.D., late Assistant Medical Officer, Local Government Board, aged 57 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

SIR GILBERT BLANE.

Sir Gilbert Blane, whose name is commemorated in the gold medals annually competed for by naval surgeons, was one of the two pioneers who brought about many beneficent hygienic reforms in the British navy, the other being James Lind, his senior. The splendid health which the navy now enjoys is an important factor in the wonderful achievements of our first line of defence in the greatest war of history, and it is to the work of Lind and Blane that we owe the present efficiency of our naval service. Temporary Surgeon-General H. D. Rolleston, C.B., R.N., therefore, is to be congratulated on having reprinted in pamphlet form the excellent résumé of the life and work of Sir Gilbert Blane which he recently contributed to the *Journal of the Royal Naval Medical Service*. Gilbert Blane was born on August 29th (O.S.), 1749, and was the fourth son of Gilbert Blane, of Blanefield, county Ayr. He was originally intended for the Church, but subsequently took up the study of medicine. Through the kindness of William Hunter, one of his teachers, he was later introduced to Sir George Rodney, whom he accompanied as private physician in the flagship H.M.S. *Sandwich*, despatched to raise the siege of Gibraltar in 1779. This voyage gave him an opportunity of studying many of those conditions of life at sea which he afterwards sought to ameliorate, and in 1781 he laid before the Board of Admiralty a memorial pointing out the neglect of cleanliness, ventilation, and dryness in the ships, the need for a supply of lemon-juice to prevent and to cure scurvy, the prevalence of intemperance, the inadequate care of the sick on board ship the absence of proper bedding and soap, and the desirability of a gratuitous supply of medicines and other necessaries to naval surgeons. It was not, however, till some 15 years later, when he was one of the commissioners of the Board of the Sick and Wounded Sailors, that he was in a position to enforce these necessary reforms. Bearing in mind the danger of interpreting the speculation of former writers as the prophetic anticipation of modern knowledge, Surgeon-General Rolleston thinks there is some ground for crediting Blane with the germ of the modern conception that the absence of a vitamine is the essential factor in the etiology of scurvy, though he did not, of course, employ the word. But his use of the word "deficiency" in reference to one of the affections now known as "deficiency diseases" is quite up to date. It is also interesting to note that Blane was not in favour of the whole-time service of naval medical officers, arguing that, as long as their official duties did not suffer, naval surgeons might advantageously occupy their spare time in increasing their professional experience by private practice. Gilbert Blane died on June 26th, 1834, in his eighty-fourth year, after many professional honours had been bestowed upon him. Surgeon-General Rolleston's extremely interesting monograph has as a frontispiece the unfinished portrait of Sir Gilbert Blane by Sir Martin A. Shee, which is in the possession of the Royal College of Physicians of London.

THE TRANSLUCENT BLIND.

SOME householders are unnecessarily concerned, we think, about a new order in regard to domestic lighting which requires that no light should be allowed to filter through the blind. So many blinds are not opaque but translucent that the order would appear to mean that these latter must be replaced by the former. As a matter of fact, such a revolution is not called for. The translucent blind is only so when it is exposed to the direct rays of the light, and all that need be done is to screen with, say, a common strip of brown paper the side of the lamp which illuminates the blind. By a translucent blind is meant a blind which, while transmitting light, does not disclose the interior of the room. Thus ground glass is translucent, while plain glass is transparent. The simple expedient suggested fulfils the object of the order and saves much unnecessary expense and inconvenience.

"WHAT'S IN A NAME?"

THE Rev. A. Cyril Pearson has devised the following anagram on "Blinded Soldiers' and Sailors' Hostel, St. Dunstan's, Regent's Park, N.W.," of which his son, Mr. C. Arthur Pearson, is the leading spirit:—"No sad dullness, solid brightness, rest, train'd work, pleasant ends!"

So far as we can see the only addition is the exclamation (!) and this the compiler of the anagram may be allowed to add as an expression of astonishment at his ingenuity.

PRUDENTIAL ASSURANCE COMPANY.

THE sixty-seventh annual report of the Prudential Assurance Company for the year ending Dec. 31st, 1915, shows that the war has naturally affected business, but in the Ordinary Branch a new annual premium income of £457,217 has been secured, and in the Industrial Branch a corresponding increase of £329,861. The war claims during the year, in both branches, number 26,826 and amount to £571,035. The total paid up to the present on this account since the outbreak of war exceeds £750,000 in respect of over 34,500 claims. The assets of the company in all branches are £94,794,798, being an increase of £3,592,454 over those of 1914. In the Ordinary Branch the directors have added £600,000 to the Investments Reserve Fund, which stands as at Dec. 31st, 1915, at £1,600,000. In addition £700,000 have been set aside as a Special Contingency Fund, and £219,331 have been carried forward. In the Industrial Branch the directors have added £342,365 to the Investments Reserve Fund, which, after deducting £92,365 representing realised loss on securities, principally due to conversion of Consols into War Loan Stock, stands as at Dec. 31st, 1915, at £1,000,000. In this branch the surplus shown is £1,043,025, including the sum of £293,947 brought forward from last year. (For 1913 the surplus was £1,837,621, including £508,116 brought forward.) Mr. J. Burn, the actuary, says in his valuation report for 1915 that "the large reduction in the Industrial Branch surplus as compared with previous years is due to several causes, all of which are connected with the war. The large amount paid in war claims has necessarily been for the most part in respect of policies on young lives where the reserves held were small, a combination of circumstances which puts the maximum strain upon the funds." The average duration of the 20,859,887 policies in force in this branch exceeds 13 years. The average age of the assured exceeds 34½ years. Mr. Burn says, "The exact effect of the provisions in respect of life insurance premiums contained in the Courts (Emergency Powers) Act it is impossible to measure, and a greater strain in this respect must be anticipated for the coming year if the insurance provisions of the Act remain in force." The directors state that the necessity of reserving funds to meet the liabilities which this Act unnecessarily and inequitably creates is in a large measure responsible for the temporary suspension of the profit-sharing scheme; this year there will be no surplus profit-sharing by the shareholders or by the outdoor staff, while the fixed dividend of the shareholders will be reduced by £100,000. The balance-sheet includes amounts totalling over £13,000,000 in War Loan and Treasury Bills. The increase in the holding of British Government securities compared with last year is £11,849,133, against a decrease of £8,276,885 in railway and other debentures, home and foreign, principally due to the sale to the British Government in July last of the whole of the company's holding of United States securities, which transaction was acknowledged by Mr. R. McKenna, on behalf of the British Government, to have been of considerable assistance in facilitating Exchange operations, and he states that "the greatest credit is due to the company for its prompt action." The retiring directors are Mr. T. C. Dewey, Mr. T. Wharrie, and Dr. J. I. Boswell, who offer themselves for re-election. The report adds that Dr. Boswell was one of the earliest Volunteers and has been engaged on army medical duty since September, 1914; he is now serving as honorary surgeon in France. The directors have sent between them 21 sons to the front, three of them, alas! to return no more. No fewer than 9221 of their staff are either serving with the colours or have attested or been rejected for service.

A GUIDE TO CHARITIES.

AMONG reference books Herbert Fry's "Royal Guide to the London Charities" (London: Chatto and Windus. 1916. Pp. 350. Price 1s. 6d.) deservedly holds a high place. The chief feature of this guide is the alphabetical arrangement of the charities. The date of foundation, the present address, objects, receipts, persons benefited, means of application, and chief officials are set out following the name of the institution. This enables the reader to take in at a glance all the important details. The current revised edition, the fifty-second, contains a preface on the charitable work of the year by Mr. J. Lane, the editor.

QUEENSLAND'S VITAL STATISTICS FOR THE YEAR 1914.

THE estimated population of Queensland on Dec. 31st, 1914, according to the fifty-fifth annual report of the Government Statistician, was 676,707 persons, being an increase of 16,549 persons for the year, in spite of a drop of 10,132 in the last quarter due to the departure of troops and nurses. The birth-rate for the year was 29·5, showing a slight decline on 1913, but better than during the earlier years of the decade. In this respect Queensland compares favourably with the other Australasian States and, excepting Tasmania, is in the first place both for the annual and quinquennial periods. A remarkable table is given showing the number of females from 15 to 45 years of age who are married or unmarried. In 1901 the numbers were 53,617 married, 50,561 unmarried; and in 1911, 64,461 married, 69,976 unmarried; with the result that the total births to all females between the ages mentioned were in 1901, 137·3 per 1000; and in 1911, 126·4 per 1000. Taken in conjunction with the figures for the earlier decades this points to a distinct persistent decline in the birth-rate; but in considering this—the report points out—the conjugal and age condition of the population must also be taken into account.

LONGEVITY.

THE following paragraph appeared in the *Daily Express* of Feb. 26th, and is worth recording in a medical journal:—

> Mr. Samuel Hance, who died recently in the village of Rayne, Essex, had a history and a record which are thought to be without equal in Essex village life. He died at the age of 91 years, and he had held the office of clerk at Rayne parish church for 50 years, the post having been held by members of his family for 195 years without a break. The ages of Mr. Hance's immediate ancestors were: Father, Joseph Hance, 91; grandfather, John Hance, 91; great-grandfather, Henry Hance, 86; great-great-grandfather, John Hance, 80; and great-great-great-grandfather, John Hance, 92. The Hance family has resided in Rayne for more than three centuries, and all the members mentioned above are buried in Rayne churchyard.
>
> Rayne is a village with a population of 400, and is situated 2½ miles west of Braintree and 5 miles east of Dunmow, of "Bacon flitch" fame.

NESTLÉ'S WAR ALBUM.

THOSE interested in infant life are probably familiar with the Nestlé's Baby Books, published annually, and containing pleasing pictures of babies brought up on Nestlé's milk. The development to maturity of these infants, a matter of moment at all times, is especially so at the present juncture. Messrs. Nestlé have now published an album containing portraits of some 200 sailors and soldiers engaged in the war who were brought up on their milk. Members of the medical profession can obtain a copy gratis on sending their card to Messrs. Nestlé, Eastcheap, London, E.C.

Rosario should discuss enrolment with the Central Medical War Committee (Secretaries, Dr. Alfred Cox and Mr. N. Bishop Harman, 429, Strand, London, W.C.).

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street. W.

MEETINGS OF SECTIONS.

Wednesday, March 15th.

HISTORY OF MEDICINE (Hon. Secretaries—Leonard G. Guthrie, J. D. Rolleston): at 5 P.M.

Books, MSS., &c., on view at 4.30 P.M.

Mr. R. R. Steele: A Note on the Scientific Writings of Roger Bacon.
Mrs. Charles Singer: Plague Manuscripts.
Sir William Osler, Bart., F.R.S.: The MSS. of the *Religio Medici*.
Captain T. A. Malloch, C.A.M.C.: Sir John Finch and Sir Thomas Baines.

Thursday, March 16th.

DERMATOLOGY (Hon. Secretaries—A. M. H. Gray, J. E. R. McDonagh): at 5 P.M.

Exhibition of Cases (at 4.30 P.M.):

Dr. George Pernet: (1) Dermatitis Herpetiformis in a Boy; (2) Staphylococcia in a Girl with Xerodermia (Staph. en nappe et en foyers à progression excentrique).
And other Cases.

Friday, March 17th.

ELECTRO-THERAPEUTICS (Hon. Secretaries—S. Gilbert Scott, E. P. Cumberbatch): at 8.30 P.M.

Discussion:

On Experiments and Experiences with the Coolidge Tube.

Opened by Dr. R. Knox on Experiments with Rotatory and Fixed Tube.
Sir James Mackenzie Davidson, Dr. Orton, and Dr. Finzi will also speak.

Members wishing to take part in the Discussion will kindly communicate with Dr. Gilbert Scott, 6, Bentinck-street, W.

ROYAL MICROSCOPICAL SOCIETY, 20, Hanover-square, W.

WEDNESDAY.—8 P.M., Prof. J. A. Thomson: Original Factors in Evolution.—Sir E. Ray Lankester, K.C.B.: The Supposed Exhibition of Purpose and Intelligence by the Foraminifera.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.

FRIDAY.—5.30 P.M., Paper:—Captain H. J. McGrigor, R.A.M.C.: Some Experiences in the Treatment of Syphilis in the Army, with Special Reference to the Administration of "606" in Concentrated Solutions.—Dr. H. Bayon: Short Demonstration of Sections and Cultures of Skin Diseases, with some Remarks on the Treatment of Syphilis in African Native Tribes and among the Workers in the Rand Gold Mines.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East.

TUESDAY AND THURSDAY—5 P.M., Milroy Lectures:—Dr. S. G. Moore: Infant Mortality and the Relative Practical Values of Measures directed to Protecting Infant Lives. (Lectures II. and III.)

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.

Course of Lectures on the Anatomy of the Human Body, for First-aid and Ambulance Students (open to all members of ambulance companies and first-aid classes):—

MONDAY, WEDNESDAY, AND FRIDAY.—5.30 P.M., Prof. A. Keith. 4 P.M. to 7 P.M., Exhibition of Anatomical Preparations and Specimens in the Theatre on lecture days, and between 10 A.M. and 5 P.M. in the Hall of the Museum on the following day.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye. Dr. Simson: Diseases of Women.

TUESDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations. Dr. Simson: Diseases of Women.

THURSDAY.—2 P.M., Medical and Surgical Clinics. X Rays. Mr. Gray: Operations. Mr. B. Harman: Diseases of the Eye.

FRIDAY.—10 A.M., Dr. Simson: Gynæcological Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Addison: Operations. Dr. Banks Davis: Diseases of the Throat, Nose, and Ear. Dr. Pernet: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Banks Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Eye Operations. 2 P.M., Medical and Surgical Clinics. X Rays. Mr. Pardoe: Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.

MONDAY.—Clinics:—10.30 A.M., Surgical Out-patients (Mr. E. Gillespie). 2.30 P.M., Medical Out-patients (Dr. T. R. Whipham): Gynæcological Out-patients (Dr. Banister). 3 P.M., Medical In patients (Dr. R. M. Leslie).

TUESDAY.—2.30 P.M., Surgical Operations (Mr. Carson). Clinics:—Medical Out patients (Dr. A. G. Auld); Surgical Out-patients (Mr. Howell Evans); Nose, Throat, and Ear Out-patients (Mr. C. H. Hayton). Radiography (Dr. Metcalfe). 3.30 P.M., Medical In-patients (Dr. A. J. Whiting).

WEDNESDAY.—Clinics:—2.30 P.M., Throat Operations (Mr. C. H. Hayton). Children Out-patients (Dr. T. R. Whipham); Eye Out-patients (Mr. R. P. Brooks); Skin Out-patients (Dr. H. W. Barber). 5.30 P.M., Eye Operations (Mr. R. P. Brooks).

THURSDAY.—2.30 P.M., Gynæcological Operations (Dr. A. E. Giles). Clinics:—Medical Out-patients (Dr. A. J. Whiting); Surgical Out-patients (Mr. Carson); Radiography (Dr. Metcalfe). 3 P.M., Medical In-patients (Dr. R. M. Leslie).

FRIDAY.—2.30 P.M., Surgical Operations (Mr. Howell Evans). Clinics:—Medical Out-patients (Dr. A. G. Auld); Surgical Out-patients (Mr. E. Gillespie); Eye Out-patients (Mr. R. P. Brooks).

THE THROAT HOSPITAL, Golden-square, W.

MONDAY.—5.15 P.M., Special Demonstration of Selected Cases.

THURSDAY.—5.15 P.M., Clinical Lecture.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W

TUESDAY.—3 P.M., Prof. A. Keith: Sea Power as a Factor in the Evolution of Modern Races. (Lecture I.)

THURSDAY.—3 P.M., Prof. H. E Armstrong: Organic Chemistry in War—Organic Products used as Propulsive and Explosive Agents. (Lecture I.)

For further particulars of the above Lectures, &c., see Advertisement Pages.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, March 8th, 1916.

Date.	Barometer reduced to Sea Level and 32° F	Direction of Wind.	Rainfall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks
Mar. 2	29·254	N.E.	0·09	41	41	33	33	33	Overcast
,, 3	29·210	N.E.	0·17	47	38	33	35	36	Raining
,, 4	29·718	N.E.	0·02	73	42	33	33	34	Cloudy
,, 5	29 880	N.	...	73	42	31	33	35	Fine
,, 6	29 840	N.	0·15	70	40	31	32	33	Cloudy
,, 7	29·754	N.	0·32	49	37	31	32	33	Snowing
,, 8	29 600	N.	...	66	40	33	34	34	Snowing

The following magazines, journals, &c., have been received:—Medical Review, Bulletin of the Johns Hopkins Hospital, Therapeutic Gazette, Edinburgh Medical Journal, Lyon Chirurgical, Indian Medical Gazette, Brist l Medico-Chirurgical Journal, Archives de Médecine et de Pharmacie Militaires, Midland Medical Journal, British Journal of Dental Science, Man, British Dental Journal, Cleveland Medical Journal, Journal of Physiology.

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It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index and Title-page to Vol. II. of 1915 were given in THE LANCET of Dec. 25th, 1915.

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